

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re application: <b>Keay et al.</b>	§	Group Art Unit: <b>4114</b>
	§	
	§	
Serial No.: <b>10/666,868</b>	§	Examiner: <b>Park, George M.</b>
	§	
Filed: <b>September 18, 2003</b>	§	Attorney Docket No.: <b>AUS920030590US1</b>
	§	
For: <b>Simulation of Business</b>	§	Customer No. <b>50170</b>
<b>Transformation Outsourcing of</b>	§	
<b>Sourcing, Procurement and Payables</b>	§	

**Declaration Under 37 CFR 1.131**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

I, Les Keay, a named inventor in the present U.S. Patent Application Serial No. 10/666,868, do hereby certify, swear or affirm, and declare, under penalty of perjury, that I am competent to give the following declaration based on my personal knowledge, unless otherwise stated, and that the following facts and things are true and correct to the best of my knowledge:

1. I am an inventor of the subject matter claimed in the pending claims of the present application.
2. The present application and claimed subject matter were drafted based on the invention disclosure document (Exhibit "A") and post invention disclosure document (Exhibit "B") attached hereto.
3. The invention disclosure document (Exhibit "A") and post invention disclosure document (Exhibit "B") were drafted by my co-inventor, John Ricketts, based on worked I performed in collaboration with my co-inventors John Ricketts, Craig Keenan, and William Shaefer.
4. The invention disclosure document t(Exhibit "A") and post invention disclosure document (Exhibit "B") have creation/modification dates of May 8, 2003 and May 20, 2003, respectively.

5. The answer to question 2 on page 5 of the invention disclosure document (Exhibit "A") indicates that the invention of the present application was implemented or otherwise shown to be workable as of the date of the invention disclosure document (May 8, 2003).
6. The present application was filed on September 18, 2003 which is less than four months from the creation/modification date of the post invention disclosure document (Exhibit "B") and four months and ten days from the creation/modification date of the invention disclosure document (Exhibit "A").
7. During the time period between the creation of the invention disclosure document (Exhibit "A") and post invention disclosure document (Exhibit "B"), and the filing of the present application, I was diligent in working with counsel in the preparation of the present patent application.
8. The Engelking et al. reference (U.S. Patent Application Publication No. 2005/0049911) has a filing date of August 29, 2003 and a publication date of March 3, 2005.
9. I, along with my co-inventors, invented the subject matter of the present claims, as evidenced by the attached invention disclosure document (Exhibit "A") and post invention disclosure document (Exhibit "B"), prior to August 29, 2003 filing date of the Engelking et al. publication.

  
\_\_\_\_\_  
Les Keay

01 / 26 / 08  
\_\_\_\_\_  
Date

Province of Ontario,

Canada

**Disclosure AUS8-2003-0823**

Prepared for and/or by an IBM Attorney - [REDACTED]

Created By John Ricketts On 05/08/2003 10:58:16 AM EDT

Last Modified By John Ricketts On 05/08/2003 03:44:20 PM EDT

Required fields are marked with the asterisk ( \* ) and must be filled in to complete the form .

**\* Title of disclosure (in English)**

Simulator for Business Transformation Outsourcing of Sourcing, Procurement and Payables

**Summary**

Status	Under Evaluation
Final Deadline	
Final Deadline Reason	
*Processing Location	Austin
*Functional Area	[REDACTED]
Attorney/Patent Professional	David Mims/Austin/IBM
IDT Team	[REDACTED]
Submitted Date	05/08/2003 01:54:35 PM EDT
*Owning Division	[REDACTED]
*Line of Business	[REDACTED]
*Industry/Sector	Other
*Competency	Other
Incentive Program	
Lab	
*Technology Code	[REDACTED]
PVT Score	

**Inventors with a Blue Pages entry**

Inventors: John Ricketts/Chicago/IBM, Les Keay/Ontario/IBM, Craig Keenan/Chicago/IBM, Bill Schaefer/Raleigh/IBM

Inventor Name	Inventor Serial	Div/Dept	Inventor Phone	Manager Name
> Ricketts, John A.	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]

Keay, Les (L.)  
Keenan, Craig A.  
Schaefer, William S. (Bill)

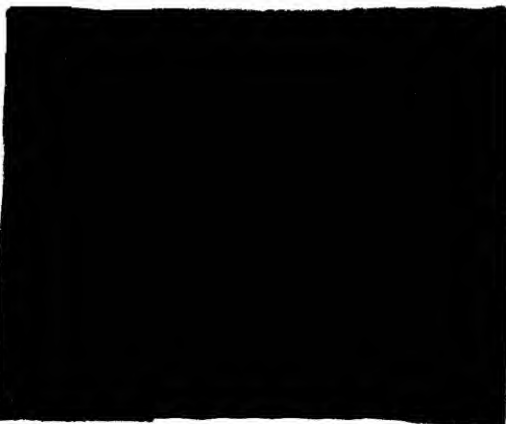
> denotes primary contact

### Inventors without a Blue Pages entry

#### IDT Selection

Attorney/Patent Professional  
IDT Team

David Mims/Austin/IBM



#### \*Main Idea

1. Background: What is the problem solved by your invention? Describe known solutions to this problem (if any). What are the drawbacks of such known solutions, or why is an additional solution required? Cite any relevant technical documents or references.

Business Transformation Outsourcing (BTO) is emerging from Business Process Outsourcing (BPO). Under BPO, an outsourcer assumes responsibility for performing one or more business processes that were previously done by the outsourcee or by another outsourcer. Business processes targeted for outsourcing are often not core businesses processes of the outsourcee. For instance, accounting and human resources are not core business processes unless the business generates its revenue primarily through its accounting or human resources services. When outsourced, the business processes themselves are typically changed only slightly, if at all, but lower labor rates generally enable an overall reduction in the cost of performing the business processes. Information technology may or may not play a significant role in reducing the cost of the business processes.

Under BTO, business processes are also assumed by an outsourcer, but the business processes themselves may be substantially changed -- often through information technology. Furthermore, the business processes being outsourced are somewhat more likely to be core processes. For instance, to a web-based retailer, shipping is a core business process that's usually outsourced because the outsourcers have more advanced technology and much larger scale. Likewise, to a telemarketer, its Customer Relationship Management (CRM) is a core business process that may be amenable to transformational outsourcing. In such cases, the business transformation goes beyond just cost reduction. The outsourcer may be able to provide substantially higher service levels, such as fewer lost calls, shorter hold times, and higher customer/employee satisfaction. A transformational outsourcer may also be able to drive a change in the outsourcee's business strategy, for example, by serving global rather than just national markets. Furthermore, the outsourcer may be able to enhance the outsourcee's financial condition, for example, by financing the outsourcing and/or by acquiring some of the outsourcee's assets that it no longer needs to perform the processes.

Like Information Technology Outsourcing (ITO), BTO deals are often large, extremely complex transactions. They may involve thousands of employees and business partners at hundreds of sites

around the world. Likewise, hundreds of millions of dollars worth of assets may be involved. Even if the outsourcing transaction is smaller financially and limited to one country, other dimensions of the transaction, such as computers, software applications, and communication networks, may be quite complex. Moreover, the array of alternatives that should be considered is huge.

Without tools, however, it's difficult to explore more than a handful of alternatives -- and examining the interacting effects of many factors over time is simply impossible. This is a fundamental problem faced by both outsourcees and outsourcers. Since the calculations are far too complicated for an analytical solution, simulating BTO deals, and thereby examining many alternatives, is a practical way to evaluate the business value and risks for all parties.

This invention is a simulator for BTO of sourcing, procurement, and payables. No prior solutions to this problem are known.

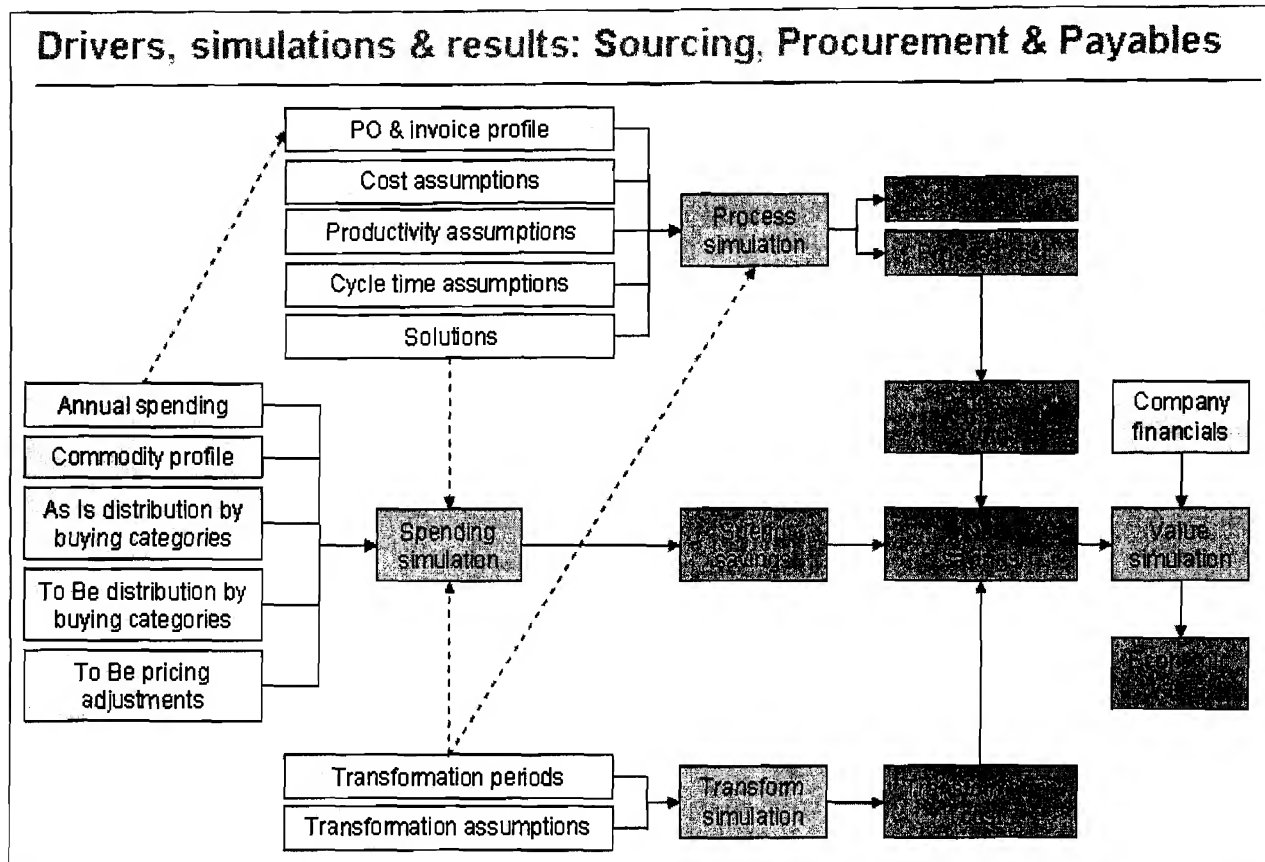
2. Summary of Invention: Briefly describe the core idea of your invention (saving the details for questions #3 below). Describe the advantage(s) of using your invention instead of the known solutions described above.

This invention shows the effects over time of various conditions and decisions pertaining to Business Transformation Outsourcing (BTO) of sourcing, procurement, and payables. For example, by strategically sourcing commodities that have not been sourced before, substantial pricing discounts on behalf of the outsourcee may be possible. Likewise, procuring and paying for commodities via automated systems may be significantly faster and less costly than performing these processes manually. Thoroughly analyzing the effects of these and other alternatives over a multi-commodity, multi-year, multi-site deal is something that cannot be done without a BTO simulator.

The principal advantage of this invention is it makes what would otherwise be an unsolvable problem solvable.

3. Description: Describe how your invention works, and how it could be implemented, using text, diagrams and flow charts as appropriate.

This invention encompasses four interlocking simulations, as illustrated in this diagram:



(1) **Spending simulation** -- The outsourcee's total spending is simulated as it is today (the As Is view) and as it could be (the To Be view), subject to an assortment of assumptions and alternatives, including adoption of information technology (such as on-line catalogs and electronic settlement) and pricing discounts due to strategic sourcing.

(2) **Process simulation** -- A flow model shows how transactions flow through the subprocesses underlying sourcing, procurement, and payables. The rate at which information technology and lower-cost resources are substituted for the old way of performing the business process affects how many transactions there are, where they flow, and what they each cost to process.

(3) **Transform simulation** -- The tasks needed to design, build, implement, and operate the new information technology (and retire old IT) are simulated.

(4) **Value simulation** -- The effects of net savings from the previous simulations on the outsourcee's financial position are simulated. So are other alternatives with financial impact, such as acquisition of assets in conjunction with BTO.

#### \*Patent Value Tool

- \* 1. Select the single most appropriate technology category for your invention from the following technologies list.

[REDACTED]

Are there any additional significant markets where the invention is likely to have impact?

☒ Yes ☐ No

Please identify them:

[REDACTED]

\*2. Have you implemented the invention (e.g., made a prototype) or otherwise shown that it is workable?

☒ Yes ☐ No

\*3. Has the subject matter of the invention or a product incorporating the invention been offered for sale, or is it likely to be offered for sale, as part of an IBM product or service?

[REDACTED]

\*4. Has the invention been commercially used (internally or externally) by IBM or another entity (e.g., included in or used to make products, or prototypes provided to a customer)?

[REDACTED]

\*5. In what type of product might a competitor include the invention?

[REDACTED]

What competitor(s) (indicate home country of such competitors if not United States)?

[REDACTED]

\*7. Is the invention applicable to a standard?

[REDACTED]

\*8. Have you, or any of the other inventors, submitted this invention disclosure or a similar invention disclosure previously?

[REDACTED]

9. Please list the invention disclosures (previously submitted or about to be submitted), products, patents, or publications that you and the other inventors feel are the most relevant to your invention (e.g., pertaining to the problem you are solving, including other solutions to the problem), be they from you or anyone else, or if not applicable, enter "None":

[REDACTED]

\* 10. Was the invention made in the course of any activity that involved any other party, be it

- The government
- A customer (such as an RFQ)
- A development partner
- An alliance
- Any contract activity
- As part of a standards setting activity
- Other persons not employed by IBM

[REDACTED]

**\*11.** Have you ever disclosed your invention to anyone outside IBM, or do you plan to do so in the future?

[REDACTED]

Please tell us whether the disclosure was (or will be) made, how made (or to be made), and whether or not there was (or is) a confidential disclosure agreement (CDA) in place covering the disclosure:

[REDACTED]

**12.** If the invention relates to a product or service that is outside the scope of your business unit, please recommend IBM business unit(s), IBM location(s) or individual(s) within IBM that you think would provide a competent evaluation of your invention:

[REDACTED]

**\*PVT II**

**All of the questions below are required and must be answered in order to calculate a PVT Score**

**A.Threshold Questions**

**\*1. Operability** - Is there an identifiable operable embodiment of the invention (i.e., an embodiment that has been demonstrated or that would be reasonably expected to provide the benefits of the invention)?

☐ Yes ☐ No

Reasons for above answer:

**\*2. Novelty**- Are one or more concept(s) of the invention novel over what is already known in the literature, existing commercial products, patents, and earlier IBM invention disclosures?

☐ Yes ☐ No

Reasons for above answer:

**B.Valuation Questions**

**\*1. Adequacy of Description:**

- ☐ Inadequate; invention unclear from description
- ☐ Incomplete; essential features missing
- ☐ Further clarification or implementation detail needed
- ☐ Clear and complete as is

State reason for answer:

**\*2. Technical contribution of invention:**

- ☐ None
- ☐ Minor addition to known technology
- ☐ Significant addition to known technology
- ☐ Major advance in technology

Reasons for above answer:

**\*3.** Describe the problem solved/benefit provided and the implementation cost of the invention compared to existing or reasonably expected alternatives:



- ☐ Minor problem/incremental benefit - significant implementation cost
- ☐ Significant problem; substantial benefit - significant implementation cost
- ☐ Minor problem/incremental benefit - minor implementation cost
- ☐ Significant problem/substantial benefit - minor implementation cost

**\*4. Are any alternatives to the invention available to those wishing to avoid its use?**

- ☐ Suitable alternatives available
- ☐ Alternatives have drawbacks
- ☐ No feasible alternatives

Reasons for above answer:

**\*5. Describe the likelihood of use of the invention (answer each):**

- IBM's customers? ☐ Unlikely ☐ Possible ☐ Probable ☐ Definite
- IBM's suppliers/vendors? ☐ Unlikely ☐ Possible ☐ Probable ☐ Definite
- IBM's competitors? ☐ Unlikely ☐ Possible ☐ Probable ☐ Definite
- IBM? ☐ Unlikely ☐ Possible ☐ Probable ☐ Definite

Reasons for above answer:

**\*6. What % of third party products in the technical field will likely contain the invention?**

- ☐ < 25%
- ☐ 25-50%
- ☐ 50-75%
- ☐ > 75%

Reasons for above answer:

**\*7. How long is the invention likely to be used in products by IBM or others?**

- ☐ < 5 years
- ☐ 5-10 years
- ☐ 10-15 years
- ☐ > 15 years

Reasons for above answer:

**\*8. How easily can use of the invention by a third party be detected?**

- ☐ Undiscoverable; third party must admit use for IBM to know
- ☐ Difficult; e.g.; with reverse engineering or examination of available code
- ☐ With work; e.g.; using test cases; but not reverse engineering
- ☐ Easily; by running & viewing product operation
- ☐ Trivially; without purchase of product; e.g.; by reading product literature

Reasons for the above answer, including description of how use could be detected:

#### **Post Disclosure Text & Drawings**

To add additional information related to this disclosure once it has been submitted, click the action button below and a new document will be opened for you to enter the new information. To view existing post disclosure information, double-click on the item in the list below (if there has been additional information entered), and the document will open for you to view.

Date entered	Post disclosure information (comments and drawings)
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Form Revised 09/01/02]



## Post Disclosure Information for AUS8-2003-0823

Prepared for and/or by an IBM Attorney - [REDACTED]

Created By John Ricketts On 05/20/2003 06:50:26 PM EDT

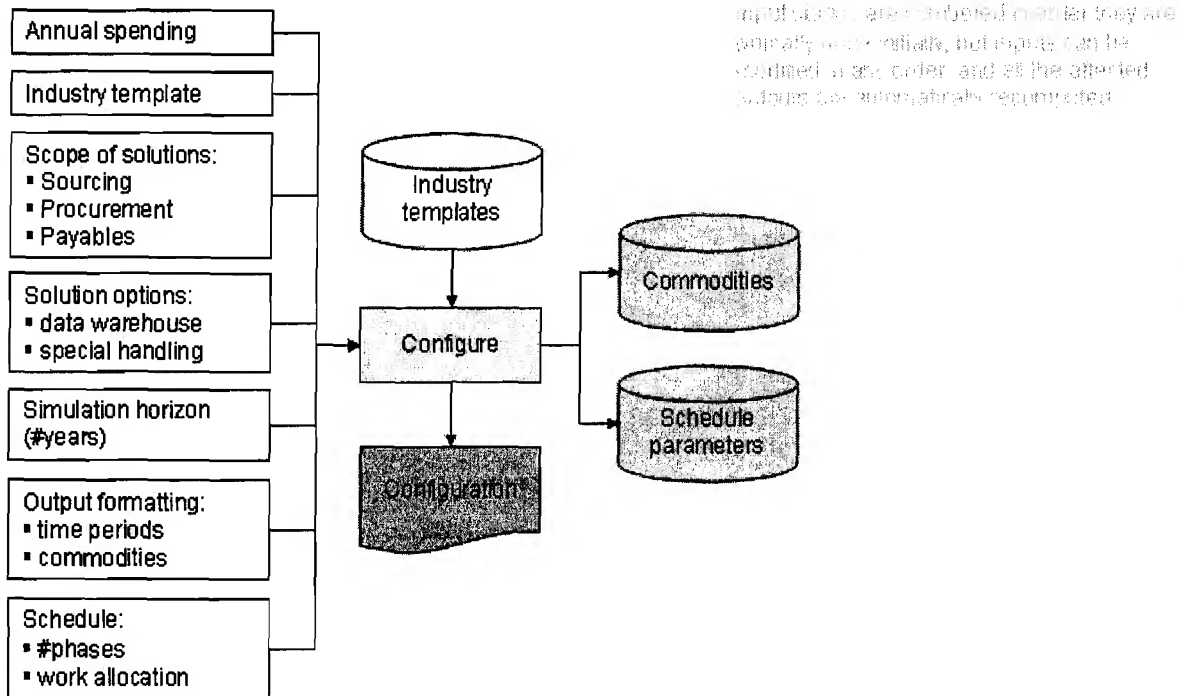
Last Modified By John Ricketts On 05/20/2003 07:08:41 PM EDT

Required fields are marked with the asterisk ( \* ) and must be filled in to complete the form .

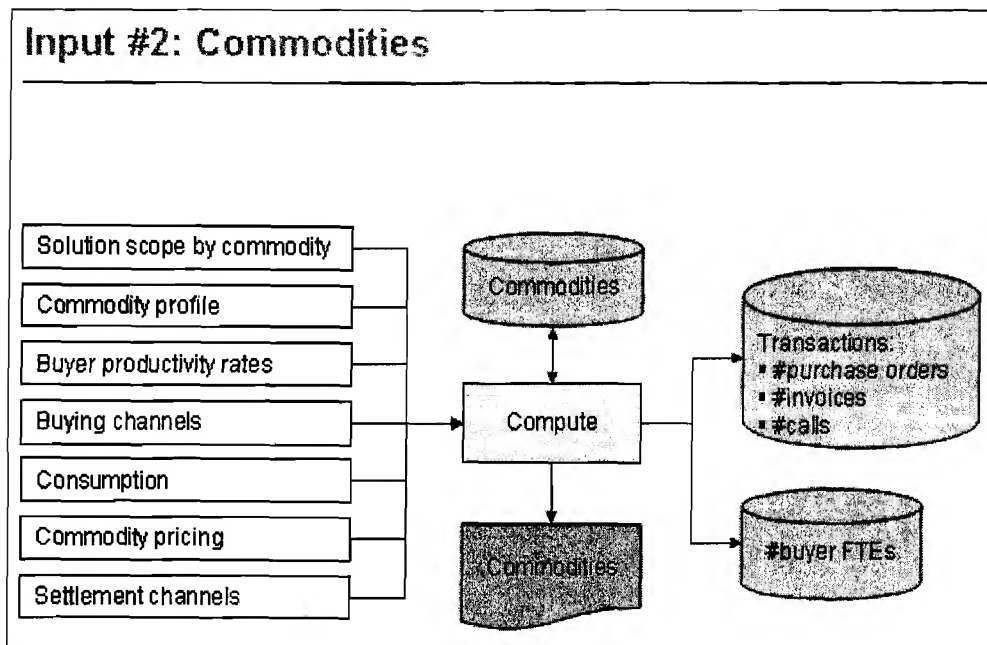
The following people are responsible for these comments John Ricketts/Chicago/IBM

The inputs, simulations, and outputs are further described below.

### Input #1: Configurator

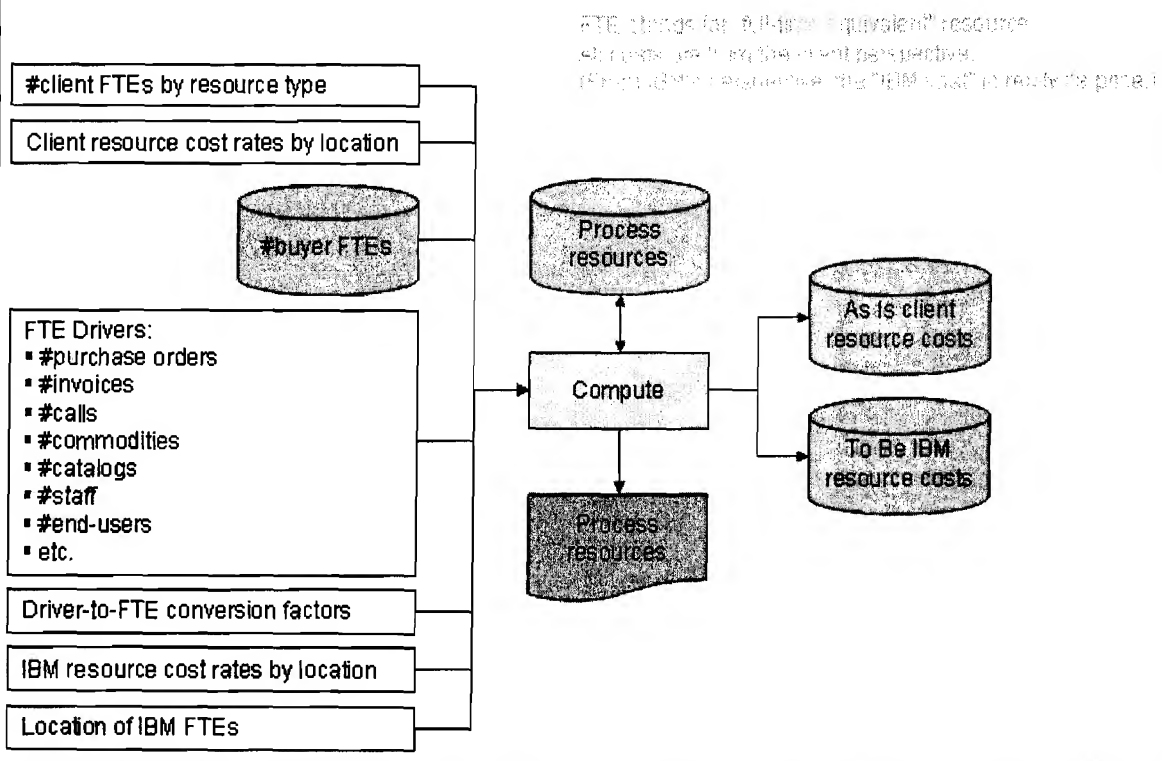


The first input is to a configurator that sets up the simulations. Annual spending drives the spending simulation. Selection of an industry template pre-populates a set of commodities appropriate to that industry. The scope of solutions determines which business processes IBM will perform for the client. Solution options are additional products and services that could be provided in support of those business processes. The simulation horizon determines the number of years of simulated time the simulations will cover. Output formatting controls the amount of detail in outputs: (1) monthly, quarterly, or yearly summaries and (2) commodity-level details. Schedule inputs control (1) the number of IT implementation phases and the amount of work done in each and (2) when the transition from the As Is to To Be processes will occur. Data prepared by the configurator includes commodities and schedule parameters. Finally, inputs to and data from the configurator can be displayed or printed.



The next set of inputs modify and extend the commodities with data about the client (i.e., IBM's customer). Some customers buy commodities that are not in the standard industry template, so the commodities set itself is editable. Active solutions can be taken out of scope for specific commodities. The commodity profile includes typical transaction size (used later to compute the number of purchase orders (POs), invoices, and calls that a given amount of annual spending generates), the portion of transactions that can be processed automatically versus manually, and the number of POs that generate spending over multiple years. Buyer productivity rates are the numbers of POs a buyer can handle per day for each commodity, which is used to compute the number of buyers needed. Buying channels describe how much buying the client does today ("As Is") through its standard process, if any, versus how much it will do later ("To Be") through the IBM standard automated process. Consumption is the decrease in spending that will result from having a standard process or increase in spending that will result from growth in the client's business. Commodity pricing is the discount obtained via strategic sourcing if that solution is in scope. Settlement channels describe how much payment the client does manually today versus how much will be automated via the IBM standard process. Data prepared by this input stage includes (1) the number of As Is versus To Be transactions and (2) the number of buyers needed to support those transactions. Finally, inputs to and data from this input stage can be displayed or printed.

### Input #3: Process resources

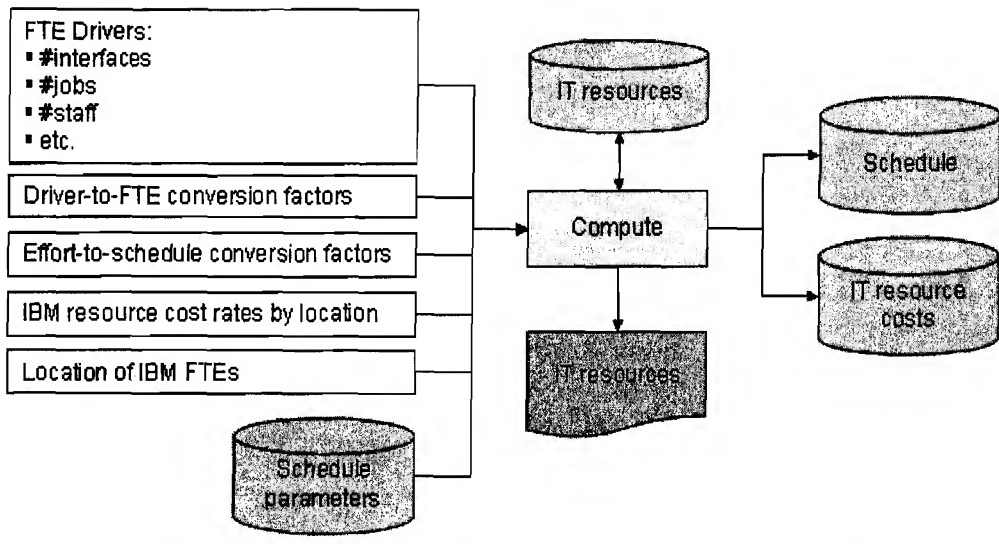


The next set of inputs define the human resources needed to perform the business processes today ("As Is") and during outsourcing ("To Be"). The number of full-time equivalent (FTE) resources the client uses today, plus their cost rates by location, are entered. Since clients may have resource types that are not in the standard set, the resource types set is editable. The number of IBM buyers needed was pre-computed during the previous input stage. The number of other IBM resources needed is computed by (1) entering an appropriate FTE driver for each resource type, (2) looking up the number of occurrences of each driver, and (3) dividing the number of occurrences by a conversion factor. The resulting resource counts are then multiplied times the cost rate for each FTE's location to get As Is and To Be resource costs. (Selecting the right mix of on-site, on-shore, and off-shore resources is key to achieving service level agreements at a competitive price.) Finally, inputs to and data from this input stage can be displayed or printed.

## Input #4: IT resources

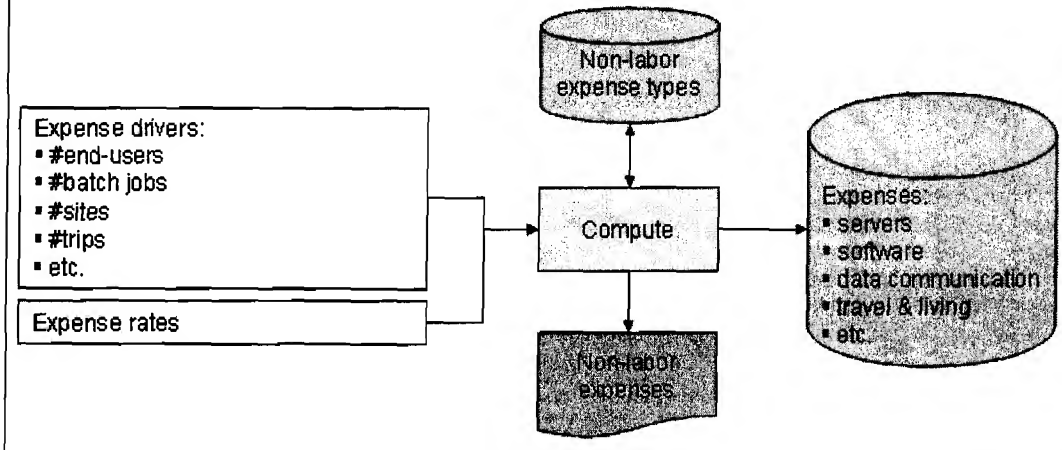
IT stands for "Information Technology"

FTE stands for "full time equivalent" resource



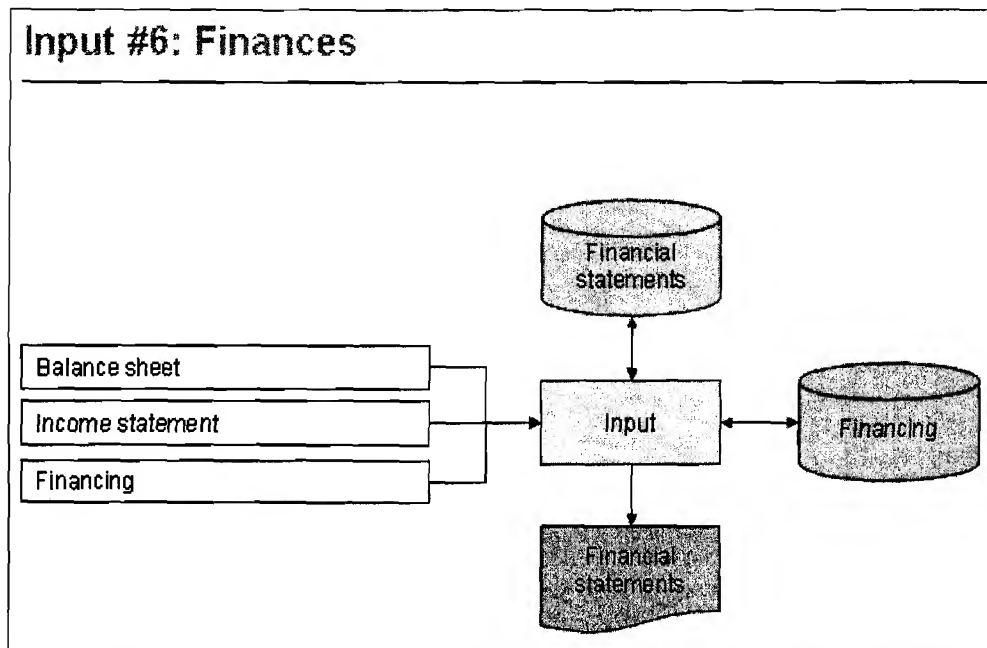
The next set of inputs define the information technology (IT) resources needed to achieve the transformation from As Is to To Be processes. IT resources are computed separately from non-IT resources because (1) there are no As Is resources to simulate and (2) some IT resources are needed for only a limited time, whereas non-IT resources are needed for the entire simulation. The IT resource type set is editable to accommodate special needs. For each resource type, the number of occurrences of an appropriate driver is divided by a conversion factor that yields work effort. The total work effort for finite-time activities (Design & Build and Implementation) and schedule parameters are used to compute the schedule. The schedule recognizes that completion of the finite-time activities initiates the on-going IT activities (Operation). Then FTEs needed to meet that schedule are computed. Resource counts are multiplied by cost rate for each FTE's location to get IT resource costs.

### Input #5: Non-labor expenses



The next set of inputs define non-labor expenses. The non-labor expense types set is editable. For each non-labor expense type, the number of occurrences of an appropriate expense driver is multiplied by the corresponding expense rate.

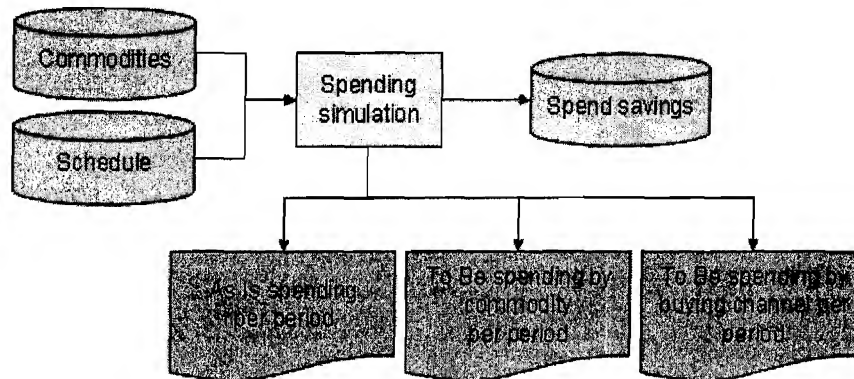
### Input #6: Finances



The last set of inputs includes the client's balance sheet and income statement, along with any IBM financial transactions, such as asset acquisition or financing of fees.

## Simulation #1: Spending

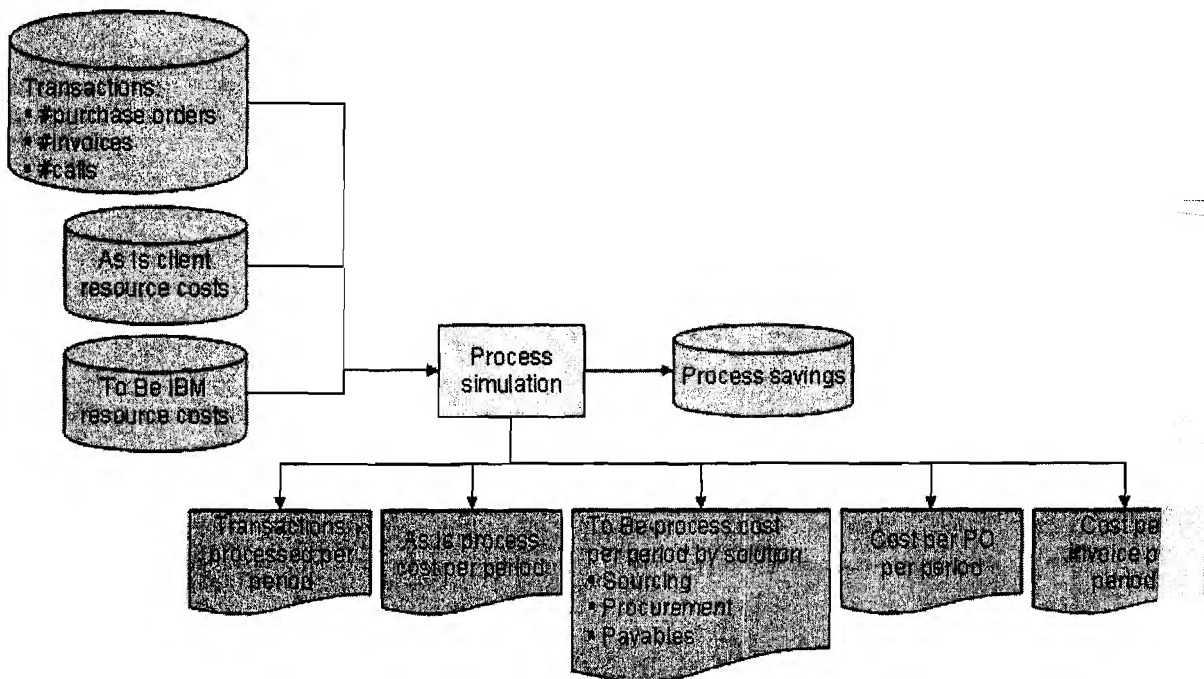
Spending data are numbered for comparison, but a change in data is automatically reflected in all the others, if applicable.



The spending simulation computes the amount of spending by commodity and by buying channel for each period, subject to the status of each period (As Is, Transition, or To Be) as well as changes in consumption, commodity pricing, and degree of compliance with the standard process.

(Non-compliant spending costs more because pricing discounts cannot be achieved.) Using the first As Is period as a baseline, spend savings is computed for each As Is period and cumulatively to the simulation horizon.

## Simulation #2: Process

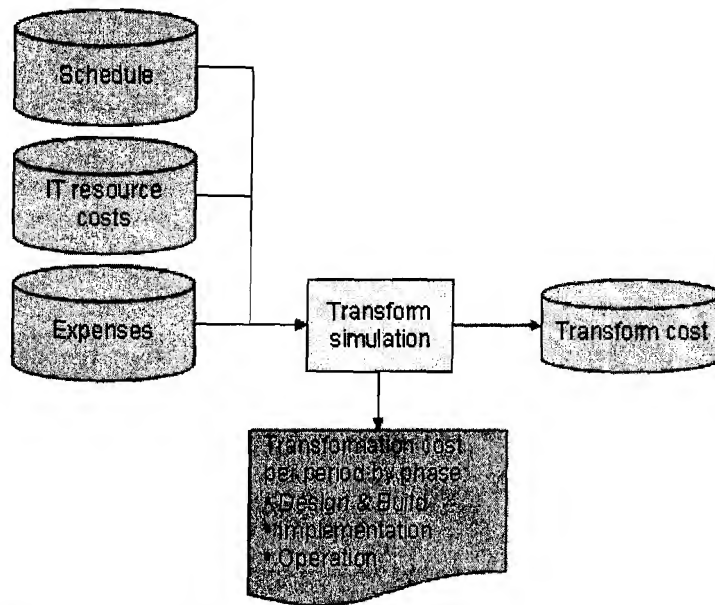


The process simulation computes the number of transactions (POs, invoices, calls) during each



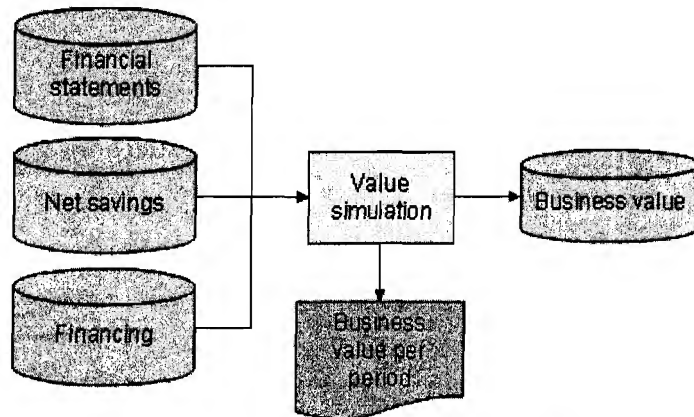
period, subject to the status of each period (As Is, Transition, or To Be) as well as changes in consumption and degree of compliance with the standard process. (Non-compliant transactions cost more because they cannot be automated.) This business process simulation is a flow model, [REDACTED] It shows how many transactions flow through each business process during each period, but does not simulate the processing of each individual transaction. Process cost per period by solution (Sourcing, Procurement, Payables) is computed from resource costs, adjusted for transaction volumes. Cost per PO and invoice per period are computed as total cost divided by number of transactions.

### Simulation #3: Transformation



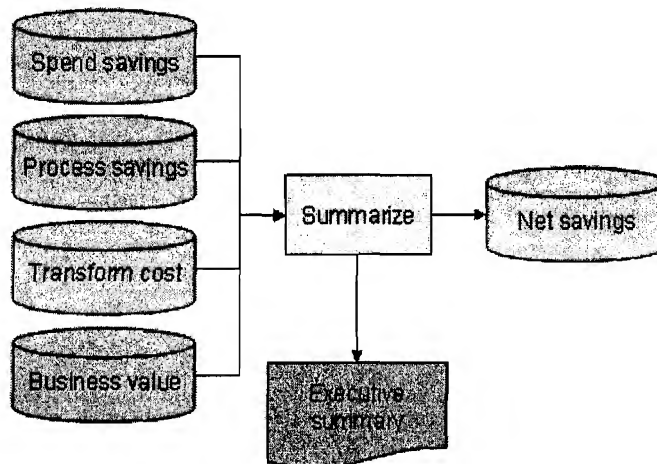
The transform simulation computes transformation cost per period by phase using IT resource costs and expenses, subject to the schedule. Phases can be serial, overlapping, or concurrent. They tend to be serial when the scope of work can be decomposed into independent releases. They tend to be overlapping or concurrent when the same work must be accomplished at multiple locations.

### Simulation #4: Value



The value simulation computes the impact of the net savings on the client's financial statements, subject to additional financial transactions, such as asset acquisition or financing of fees. When the client's cost of capital is considered, the impact of net savings from Business Transformation Outsourcing can be substantial.

### Executive summary of simulations



An executive summary of the simulations (1) computes the net savings used in the value simulation and (2) summarizes the results of all the simulations. Spend savings plus process savings minus transform cost equals net savings.

All the simulations are discrete rather than continuous. When run for clients, the simulations are deterministic. But when run for internal research purposes and risk management, they are stochastic (i.e., random variability can be injected and the simulations run many times to quantify

expected values).

The simulations do not embody optimization models. BTO engagements are far too complex overall to apply any familiar optimization algorithm. Indeed, this is the principal reason for using simulations rather than analytical models to build business cases.

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re application: <b>Keay et al.</b>	§	Group Art Unit: <b>4114</b>
	§	
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Serial No.: <b>10/666,868</b>	§	Examiner: <b>Park, George M.</b>
	§	
Filed: <b>September 18, 2003</b>	§	Attorney Docket No.: <b>AUS920030590US1</b>
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<b>Transformation Outsourcing of</b>	§	
<b>Sourcing, Procurement and Payables</b>	§	

**Declaration Under 37 CFR 1.131**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

I, Craig Keenan, a named inventor in the present U.S. Patent Application Serial No. 10/666,868, do hereby certify, swear or affirm, and declare, under penalty of perjury, that I am competent to give the following declaration based on my personal knowledge, unless otherwise stated, and that the following facts and things are true and correct to the best of my knowledge:

1. I am an inventor of the subject matter claimed in the pending claims of the present application.
2. The present application and claimed subject matter were drafted based on the invention disclosure document (Exhibit "A") and post invention disclosure document (Exhibit "B") attached hereto.
3. The invention disclosure document (Exhibit "A") and post invention disclosure document (Exhibit "B") were drafted by my co-inventor, John Ricketts, based on work I performed in collaboration with my co-inventors John Ricketts, Les Keay, and William Shaefer.
4. The invention disclosure document (Exhibit "A") and post invention disclosure document (Exhibit "B") have creation/modification dates of May 8, 2003 and May 20, 2003, respectively.

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6. The present application was filed on September 18, 2003 which is less than four months from the creation/modification date of the post invention disclosure document (Exhibit "B") and four months and ten days from the creation/modification date of the invention disclosure document (Exhibit "A").

7. During the time period between the creation of the invention disclosure document (Exhibit "A") and post invention disclosure document (Exhibit "B"), and the filing of the present application, I was diligent in working with counsel in the preparation of the present patent application.

8. The Engelking et al. reference (U.S. Patent Application Publication No. 2005/0049911) has a filing date of August 29, 2003 and a publication date of March 3, 2005.

9. I, along with my co-inventors, invented the subject matter of the present claims, as evidenced by the attached invention disclosure document (Exhibit "A") and post invention disclosure document (Exhibit "B"), prior to August 29, 2003 filing date of the Engelking et al. publication.

Craig A. Keenan  
Craig Keenan

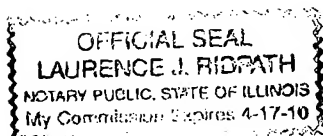
1/24/08  
Date

State of Illinois

(SS)

County of DuPage

On this 24<sup>th</sup> day of January, 2008, before me, the undersigned notary public, personally appeared Craig Keenan, known to me to be the person whose name is subscribed to the within instrument and acknowledged that he executed the same for the purposes therein contained.



[Signature]  
Notary Public

**Disclosure AUS8-2003-0823**

Prepared for and/or by an IBM Attorney - [REDACTED]

Created By John Ricketts On 05/08/2003 10:58:16 AM EDT

Last Modified By John Ricketts On 05/08/2003 03:44:20 PM EDT

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**\* Title of disclosure (in English)**

Simulator for Business Transformation Outsourcing of Sourcing, Procurement and Payables

**Summary**

Status	Under Evaluation
Final Deadline	
Final Deadline Reason	
*Processing Location	Austin
*Functional Area	[REDACTED]
Attorney/Patent Professional	David Mims/Austin/IBM
IDT Team	[REDACTED]
Submitted Date	05/08/2003 01:54:35 PM EDT
*Owning Division	[REDACTED]
*Line of Business	[REDACTED]
*Industry/Sector	Other
*Competency	Other
Incentive Program	
Lab	
*Technology Code	[REDACTED]
PVT Score	

**Inventors with a Blue Pages entry**

Inventors: John Ricketts/Chicago/IBM, Les Keay/Ontario/IBM, Craig Keenan/Chicago/IBM, Bill Schaefer/Raleigh/IBM

Inventor Name	Inventor Serial	Div/Dept	Inventor Phone	Manager Name
> Ricketts, John A.	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]

Keay, Les (L.)  
Keenan, Craig A.  
Schaefer, William S. (Bill)

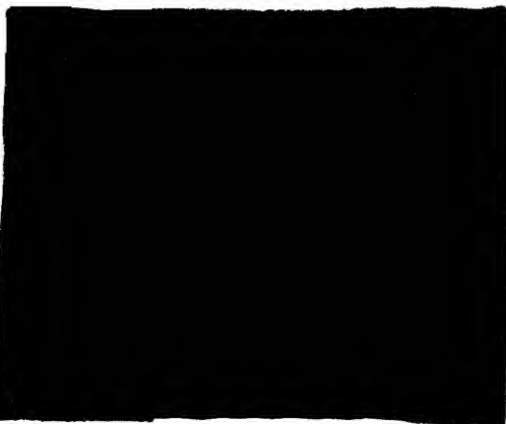
> denotes primary contact

### Inventors without a Blue Pages entry

#### IDT Selection

Attorney/Patent Professional  
IDT Team

David Mims/Austin/IBM



#### \*Main Idea

1. Background: What is the problem solved by your invention? Describe known solutions to this problem (if any). What are the drawbacks of such known solutions, or why is an additional solution required? Cite any relevant technical documents or references.

Business Transformation Outsourcing (BTO) is emerging from Business Process Outsourcing (BPO). Under BPO, an outsourcer assumes responsibility for performing one or more business processes that were previously done by the outsourcee or by another outsourcer. Business processes targeted for outsourcing are often not core businesses processes of the outsourcee. For instance, accounting and human resources are not core business processes unless the business generates its revenue primarily through its accounting or human resources services. When outsourced, the business processes themselves are typically changed only slightly, if at all, but lower labor rates generally enable an overall reduction in the cost of performing the business processes. Information technology may or may not play a significant role in reducing the cost of the business processes.

Under BTO, business processes are also assumed by an outsourcer, but the business processes themselves may be substantially changed -- often through information technology. Furthermore, the business processes being outsourced are somewhat more likely to be core processes. For instance, to a web-based retailer, shipping is a core business process that's usually outsourced because the outsourcers have more advanced technology and much larger scale. Likewise, to a telemarketer, its Customer Relationship Management (CRM) is a core business process that may be amenable to transformational outsourcing. In such cases, the business transformation goes beyond just cost reduction. The outsourcer may be able to provide substantially higher service levels, such as fewer lost calls, shorter hold times, and higher customer/employee satisfaction. A transformational outsourcer may also be able to drive a change in the outsourcee's business strategy, for example, by serving global rather than just national markets. Furthermore, the outsourcer may be able to enhance the outsourcee's financial condition, for example, by financing the outsourcing and/or by acquiring some of the outsourcee's assets that it no longer needs to perform the processes.

Like Information Technology Outsourcing (ITO), BTO deals are often large, extremely complex transactions. They may involve thousands of employees and business partners at hundreds of sites

around the world. Likewise, hundreds of millions of dollars worth of assets may be involved. Even if the outsourcing transaction is smaller financially and limited to one country, other dimensions of the transaction, such as computers, software applications, and communication networks, may be quite complex. Moreover, the array of alternatives that should be considered is huge.

Without tools, however, it's difficult to explore more than a handful of alternatives -- and examining the interacting effects of many factors over time is simply impossible. This is a fundamental problem faced by both outsourcees and outsourcers. Since the calculations are far too complicated for an analytical solution, simulating BTO deals, and thereby examining many alternatives, is a practical way to evaluate the business value and risks for all parties.

This invention is a simulator for BTO of sourcing, procurement, and payables. No prior solutions to this problem are known.

2. Summary of Invention: Briefly describe the core idea of your invention (saving the details for questions #3 below). Describe the advantage(s) of using your invention instead of the known solutions described above.

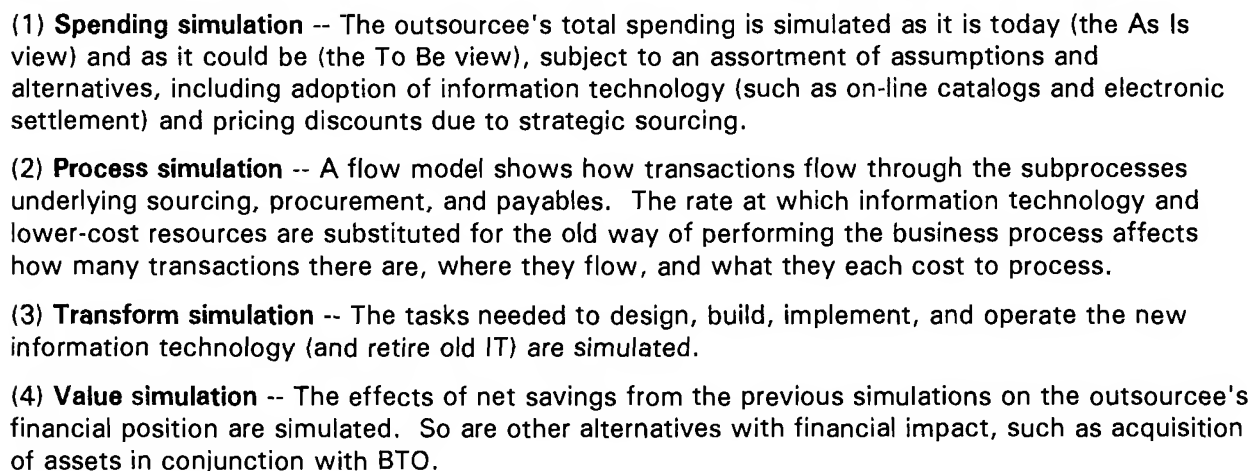
This invention shows the effects over time of various conditions and decisions pertaining to Business Transformation Outsourcing (BTO) of sourcing, procurement, and payables. For example, by strategically sourcing commodities that have not been sourced before, substantial pricing discounts on behalf of the outsourcee may be possible. Likewise, procuring and paying for commodities via automated systems may be significantly faster and less costly than performing these processes manually. Thoroughly analyzing the effects of these and other alternatives over a multi-commodity, multi-year, multi-site deal is something that cannot be done without a BTO simulator.

The principal advantage of this invention is it makes what would otherwise be an unsolvable problem solvable.

3. Description: Describe how your invention works, and how it could be implemented, using text, diagrams and flow charts as appropriate.

This invention encompasses four interlocking simulations, as illustrated in this diagram:





\* **1. Select the single most appropriate technology category for your invention from the following technologies list.**

Please identify them:

[REDACTED]

\*2. Have you implemented the invention (e.g., made a prototype) or otherwise shown that it is workable?

☒ Yes ☐ No

\*3. Has the subject matter of the invention or a product incorporating the invention been offered for sale, or is it likely to be offered for sale, as part of an IBM product or service?

[REDACTED]

\*4. Has the invention been commercially used (internally or externally) by IBM or another entity (e.g., included in or used to make products, or prototypes provided to a customer)?

[REDACTED]

\*5. In what type of product might a competitor include the invention?

[REDACTED]

What competitor(s) (indicate home country of such competitors if not United States)?

[REDACTED]

\*7. Is the invention applicable to a standard?

[REDACTED]

\*8. Have you, or any of the other inventors, submitted this invention disclosure or a similar invention disclosure previously?

[REDACTED]

9. Please list the invention disclosures (previously submitted or about to be submitted), products, patents, or publications that you and the other inventors feel are the most relevant to your invention (e.g., pertaining to the problem you are solving, including other solutions to the problem), be they from you or anyone else, or if not applicable, enter "None":

[REDACTED]

\* 10. Was the invention made in the course of any activity that involved any other party, be it

- The government
- A customer (such as an RFQ)
- A development partner
- An alliance
- Any contract activity
- As part of a standards setting activity
- Other persons not employed by IBM

[REDACTED]

**\*11.** Have you ever disclosed your invention to anyone outside IBM, or do you plan to do so in the future?

[REDACTED]

Please tell us whether the disclosure was (or will be) made, how made (or to be made), and whether or not there was (or is) a confidential disclosure agreement (CDA) in place covering the disclosure:

[REDACTED]

**12.** If the invention relates to a product or service that is outside the scope of your business unit, please recommend IBM business unit(s), IBM location(s) or individual(s) within IBM that you think would provide a competent evaluation of your invention:

[REDACTED]

**\*PVT II**

**All of the questions below are required and must be answered in order to calculate a PVT Score**

**A.Threshold Questions**

**\*1. Operability** - Is there an identifiable operable embodiment of the invention (i.e., an embodiment that has been demonstrated or that would be reasonably expected to provide the benefits of the invention)?

☐ Yes ☐ No

Reasons for above answer:

**\*2. Novelty**- Are one or more concept(s) of the invention novel over what is already known in the literature, existing commercial products, patents, and earlier IBM invention disclosures?

☐ Yes ☐ No

Reasons for above answer:

**B.Valuation Questions**

**\*1. Adequacy of Description:**

- ☐ Inadequate; invention unclear from description
- ☐ Incomplete; essential features missing
- ☐ Further clarification or implementation detail needed
- ☐ Clear and complete as is

State reason for answer:

**\*2. Technical contribution of invention:**

- ☐ None
- ☐ Minor addition to known technology
- ☐ Significant addition to known technology
- ☐ Major advance in technology

Reasons for above answer:

**\*3.** Describe the problem solved/benefit provided and the implementation cost of the invention compared to existing or reasonably expected alternatives:

- ☐ Minor problem/incremental benefit - significant implementation cost
- ☐ Significant problem; substantial benefit - significant implementation cost
- ☐ Minor problem/incremental benefit - minor implementation cost
- ☐ Significant problem/substantial benefit - minor implementation cost

**\*4. Are any alternatives to the invention available to those wishing to avoid its use?**

- ☐ Suitable alternatives available
- ☐ Alternatives have drawbacks
- ☐ No feasible alternatives

Reasons for above answer:

**\*5. Describe the likelihood of use of the invention (answer each):**

- IBM's customers? ☐ Unlikely ☐ Possible ☐ Probable ☐ Definite
- IBM's suppliers/vendors? ☐ Unlikely ☐ Possible ☐ Probable ☐ Definite
- IBM's competitors? ☐ Unlikely ☐ Possible ☐ Probable ☐ Definite
- IBM? ☐ Unlikely ☐ Possible ☐ Probable ☐ Definite

Reasons for above answer:

**\*6. What % of third party products in the technical field will likely contain the invention?**

- ☐ < 25%
- ☐ 25-50%
- ☐ 50-75%
- ☐ > 75%

Reasons for above answer:

**\*7. How long is the invention likely to be used in products by IBM or others?**

- ☐ < 5 years
- ☐ 5-10 years
- ☐ 10-15 years
- ☐ > 15 years

Reasons for above answer:

**\*8. How easily can use of the invention by a third party be detected?**

- ☐ Undiscoverable; third party must admit use for IBM to know
- ☐ Difficult; e.g.; with reverse engineering or examination of available code
- ☐ With work; e.g.; using test cases; but not reverse engineering
- ☐ Easily; by running & viewing product operation
- ☐ Trivially; without purchase of product; e.g.; by reading product literature

Reasons for the above answer, including description of how use could be detected:

#### Post Disclosure Text & Drawings

To add additional information related to this disclosure once it has been submitted, click the action button below and a new document will be opened for you to enter the new information. To view existing post disclosure information, double-click on the item in the list below (if there has been additional information entered), and the document will open for you to view.

Date entered	Post disclosure information (comments and drawings)
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Form Revised 09/01/02]



## Post Disclosure Information for AUS8-2003-0823

Prepared for and/or by an IBM Attorney - [REDACTED]

Created By John Ricketts On 05/20/2003 06:50:26 PM EDT

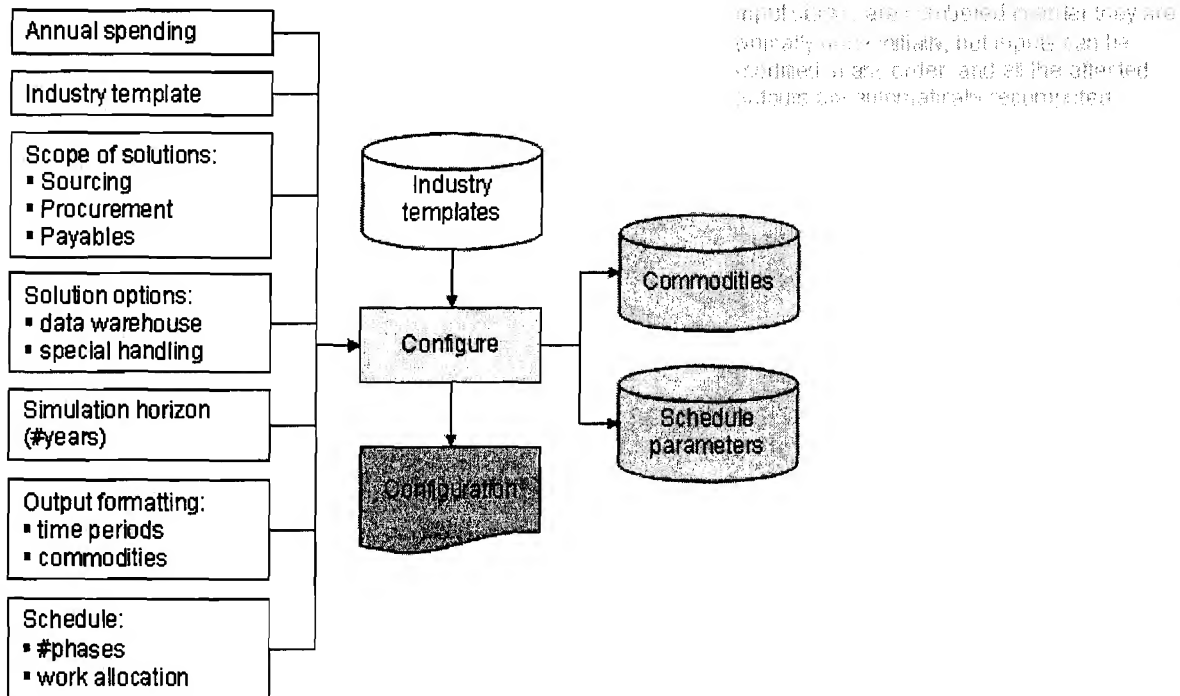
Last Modified By John Ricketts On 05/20/2003 07:08:41 PM EDT

Required fields are marked with the asterisk ( \* ) and must be filled in to complete the form .

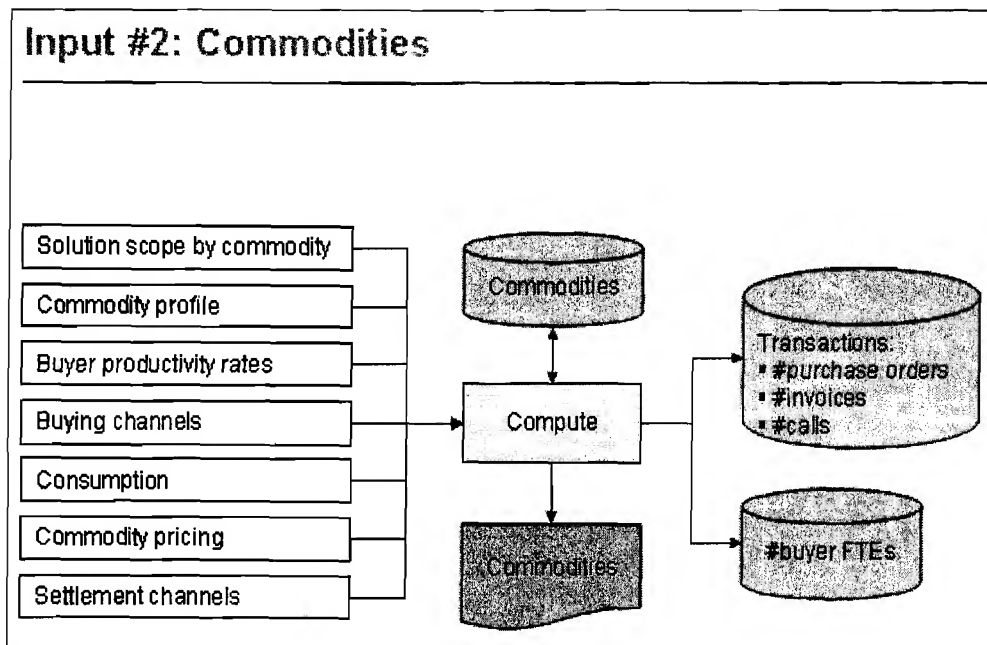
The following people are responsible for these comments John Ricketts/Chicago/IBM

The inputs, simulations, and outputs are further described below.

### Input #1: Configurator

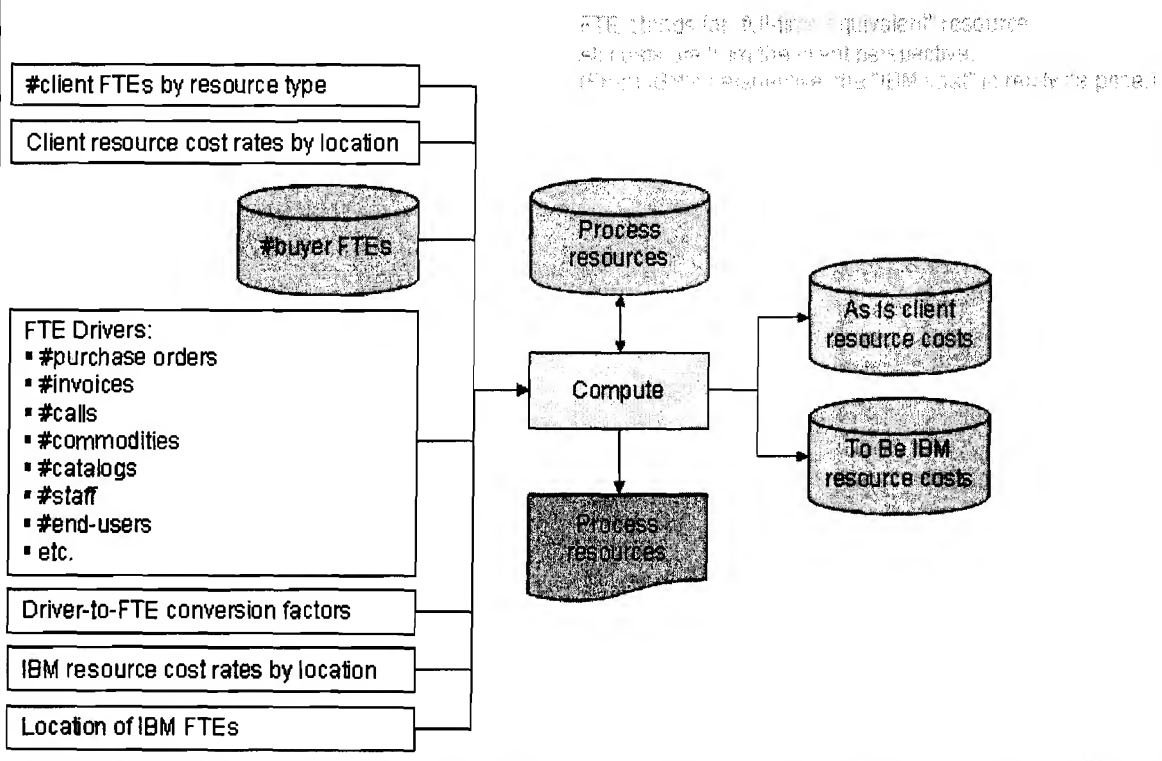


The first input is to a configurator that sets up the simulations. Annual spending drives the spending simulation. Selection of an industry template pre-populates a set of commodities appropriate to that industry. The scope of solutions determines which business processes IBM will perform for the client. Solution options are additional products and services that could be provided in support of those business processes. The simulation horizon determines the number of years of simulated time the simulations will cover. Output formatting controls the amount of detail in outputs: (1) monthly, quarterly, or yearly summaries and (2) commodity-level details. Schedule inputs control (1) the number of IT implementation phases and the amount of work done in each and (2) when the transition from the As Is to To Be processes will occur. Data prepared by the configurator includes commodities and schedule parameters. Finally, inputs to and data from the configurator can be displayed or printed.



The next set of inputs modify and extend the commodities with data about the client (i.e., IBM's customer). Some customers buy commodities that are not in the standard industry template, so the commodities set itself is editable. Active solutions can be taken out of scope for specific commodities. The commodity profile includes typical transaction size (used later to compute the number of purchase orders (POs), invoices, and calls that a given amount of annual spending generates), the portion of transactions that can be processed automatically versus manually, and the number of POs that generate spending over multiple years. Buyer productivity rates are the numbers of POs a buyer can handle per day for each commodity, which is used to compute the number of buyers needed. Buying channels describe how much buying the client does today ("As Is") through its standard process, if any, versus how much it will do later ("To Be") through the IBM standard automated process. Consumption is the decrease in spending that will result from having a standard process or increase in spending that will result from growth in the client's business. Commodity pricing is the discount obtained via strategic sourcing if that solution is in scope. Settlement channels describe how much payment the client does manually today versus how much will be automated via the IBM standard process. Data prepared by this input stage includes (1) the number of As Is versus To Be transactions and (2) the number of buyers needed to support those transactions. Finally, inputs to and data from this input stage can be displayed or printed.

### Input #3: Process resources



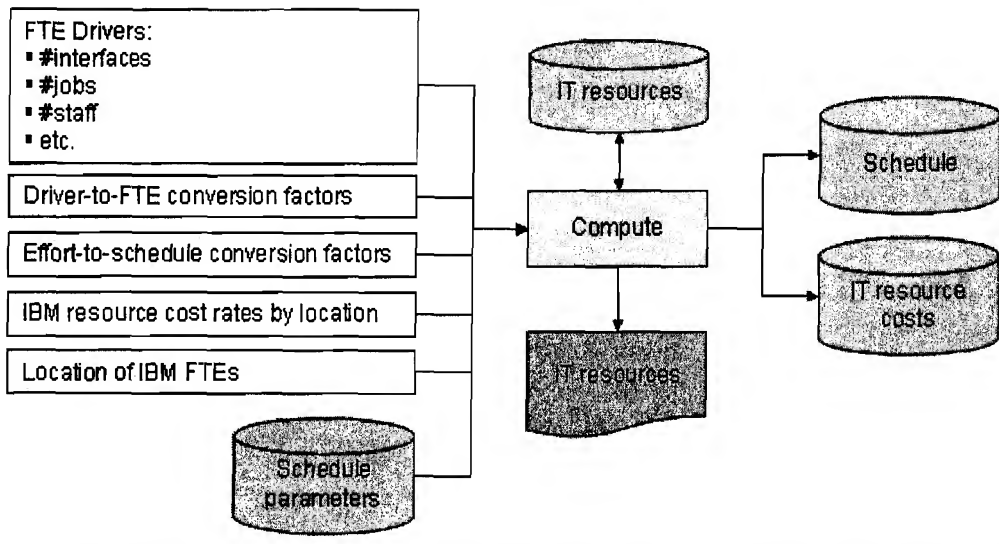
The next set of inputs define the human resources needed to perform the business processes today ("As Is") and during outsourcing ("To Be"). The number of full-time equivalent (FTE) resources the client uses today, plus their cost rates by location, are entered. Since clients may have resource types that are not in the standard set, the resource types set is editable. The number of IBM buyers needed was pre-computed during the previous input stage. The number of other IBM resources needed is computed by (1) entering an appropriate FTE driver for each resource type, (2) looking up the number of occurrences of each driver, and (3) dividing the number of occurrences by a conversion factor. The resulting resource counts are then multiplied times the cost rate for each FTE's location to get As Is and To Be resource costs. (Selecting the right mix of on-site, on-shore, and off-shore resources is key to achieving service level agreements at a competitive price.) Finally, inputs to and data from this input stage can be displayed or printed.



## Input #4: IT resources

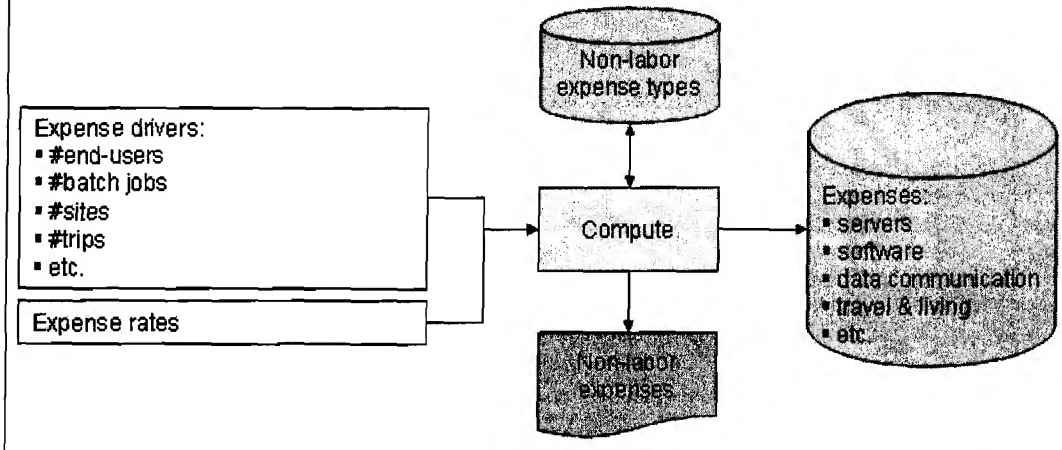
IT stands for "Information Technology"

FTE stands for "full time equivalent" resource



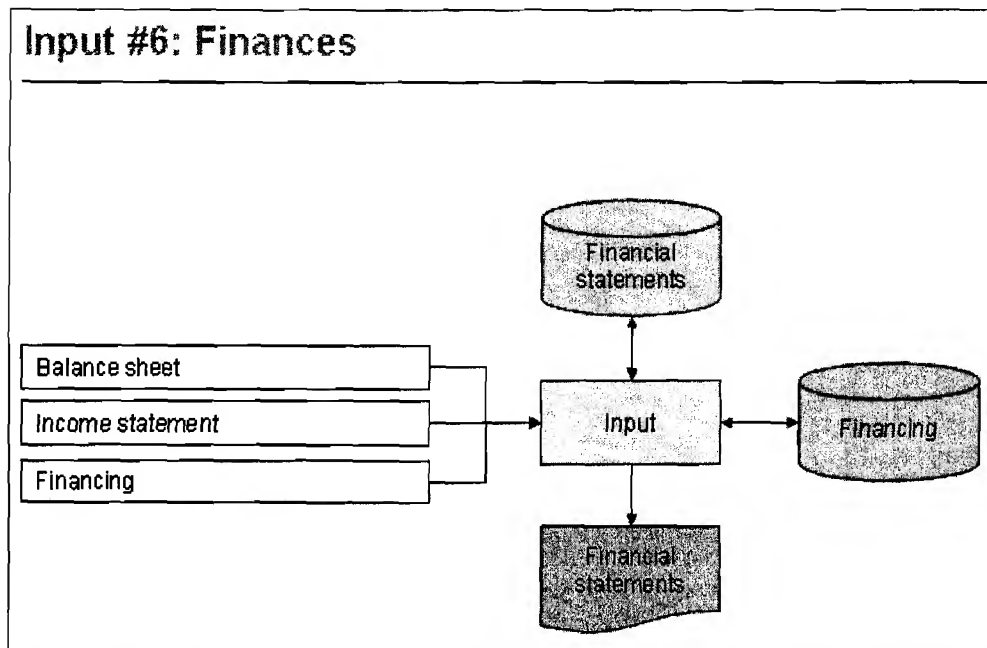
The next set of inputs define the information technology (IT) resources needed to achieve the transformation from As Is to To Be processes. IT resources are computed separately from non-IT resources because (1) there are no As Is resources to simulate and (2) some IT resources are needed for only a limited time, whereas non-IT resources are needed for the entire simulation. The IT resource type set is editable to accommodate special needs. For each resource type, the number of occurrences of an appropriate driver is divided by a conversion factor that yields work effort. The total work effort for finite-time activities (Design & Build and Implementation) and schedule parameters are used to compute the schedule. The schedule recognizes that completion of the finite-time activities initiates the on-going IT activities (Operation). Then FTEs needed to meet that schedule are computed. Resource counts are multiplied by cost rate for each FTE's location to get IT resource costs.

### Input #5: Non-labor expenses



The next set of inputs define non-labor expenses. The non-labor expense types set is editable. For each non-labor expense type, the number of occurrences of an appropriate expense driver is multiplied by the corresponding expense rate.

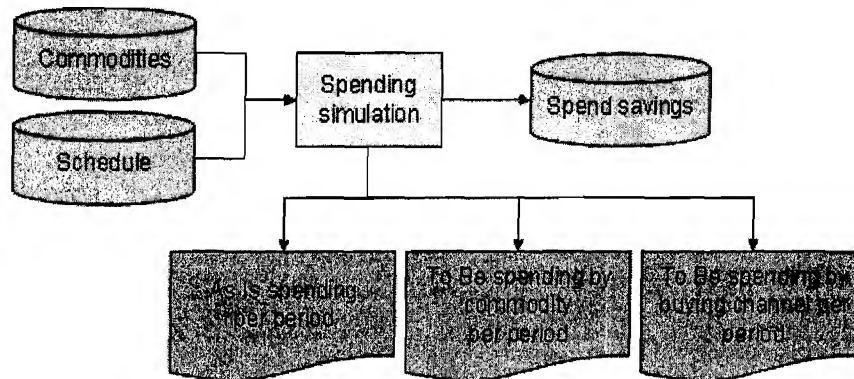
### Input #6: Finances



The last set of inputs includes the client's balance sheet and income statement, along with any IBM financial transactions, such as asset acquisition or financing of fees.

## Simulation #1: Spending

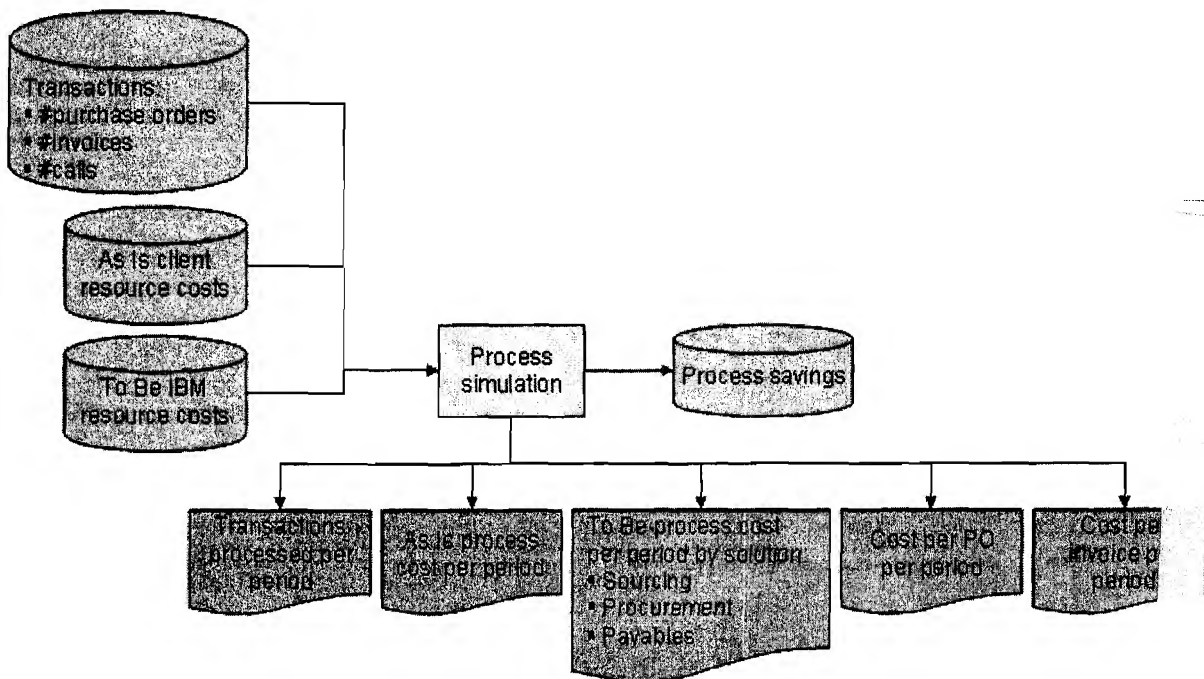
Spending data are numbered for comparison, but a change in data is automatically reflected in all the others, if applicable.



The spending simulation computes the amount of spending by commodity and by buying channel for each period, subject to the status of each period (As Is, Transition, or To Be) as well as changes in consumption, commodity pricing, and degree of compliance with the standard process.

(Non-compliant spending costs more because pricing discounts cannot be achieved.) Using the first As Is period as a baseline, spend savings is computed for each As Is period and cumulatively to the simulation horizon.

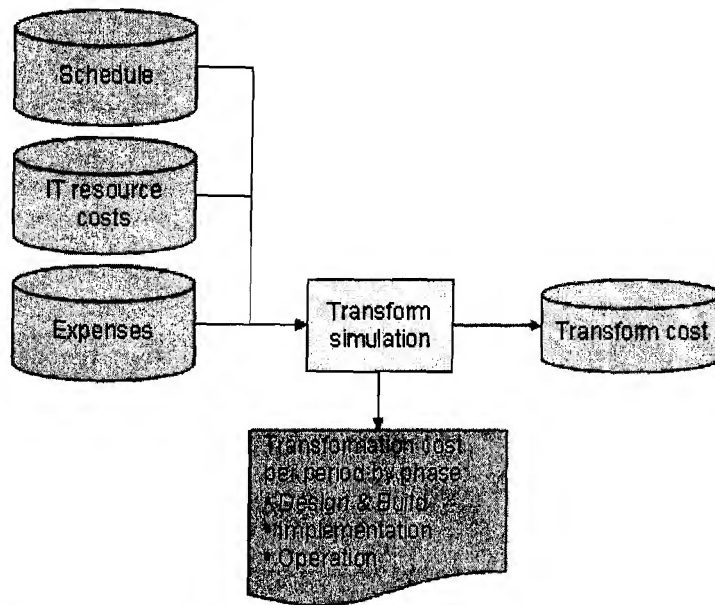
## Simulation #2: Process



The process simulation computes the number of transactions (POs, invoices, calls) during each

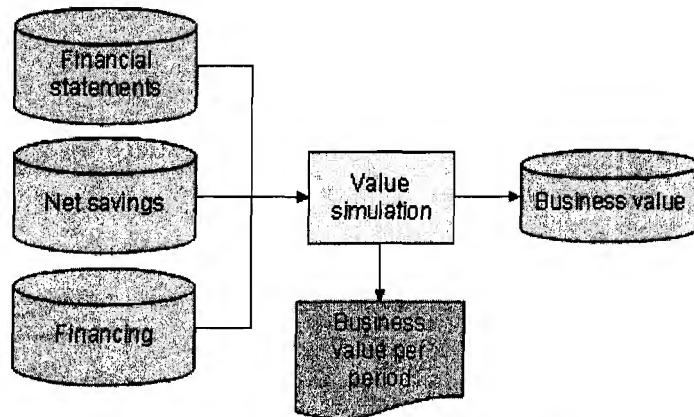
period, subject to the status of each period (As Is, Transition, or To Be) as well as changes in consumption and degree of compliance with the standard process. (Non-compliant transactions cost more because they cannot be automated.) This business process simulation is a flow model, [REDACTED] It shows how many transactions flow through each business process during each period, but does not simulate the processing of each individual transaction. Process cost per period by solution (Sourcing, Procurement, Payables) is computed from resource costs, adjusted for transaction volumes. Cost per PO and invoice per period are computed as total cost divided by number of transactions.

### Simulation #3: Transformation



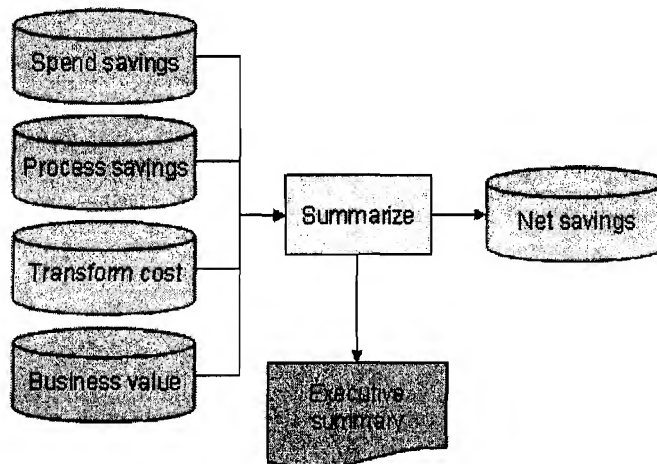
The transform simulation computes transformation cost per period by phase using IT resource costs and expenses, subject to the schedule. Phases can be serial, overlapping, or concurrent. They tend to be serial when the scope of work can be decomposed into independent releases. They tend to be overlapping or concurrent when the same work must be accomplished at multiple locations.

### Simulation #4: Value



The value simulation computes the impact of the net savings on the client's financial statements, subject to additional financial transactions, such as asset acquisition or financing of fees. When the client's cost of capital is considered, the impact of net savings from Business Transformation Outsourcing can be substantial.

### Executive summary of simulations



An executive summary of the simulations (1) computes the net savings used in the value simulation and (2) summarizes the results of all the simulations. Spend savings plus process savings minus transform cost equals net savings.

All the simulations are discrete rather than continuous. When run for clients, the simulations are deterministic. But when run for internal research purposes and risk management, they are stochastic (i.e., random variability can be injected and the simulations run many times to quantify

expected values).

The simulations do not embody optimization models. BTO engagements are far too complex overall to apply any familiar optimization algorithm. Indeed, this is the principal reason for using simulations rather than analytical models to build business cases.

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re application: <b>Keay et al.</b>	§	Group Art Unit: <b>4114</b>
	§	
Serial No.: <b>10/666,868</b>	§	Examiner: <b>Park, George M.</b>
	§	
Filed: <b>September 18, 2003</b>	§	Attorney Docket No.: <b>AUS920030590US1</b>
	§	
For: <b>Simulation of Business</b>	§	Customer No. <b>50170</b>
<b>Transformation Outsourcing of</b>	§	
<b>Sourcing, Procurement and Payables</b>	§	

**Declaration Under 37 CFR 1.131**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

I, John Ricketts, a named inventor in the present U.S. Patent Application Serial No. 10/666,868, do hereby certify, swear or affirm, and declare, under penalty of perjury, that I am competent to give the following declaration based on my personal knowledge, unless otherwise stated, and that the following facts and things are true and correct to the best of my knowledge:

1. I am an inventor of the subject matter claimed in the pending claims of the present application.
2. The present application and claimed subject matter were drafted based on the invention disclosure document (Exhibit "A") and post invention disclosure document (Exhibit "B") attached hereto.
3. The invention disclosure document (Exhibit "A") and post invention disclosure document (Exhibit "B") were drafted by me based on worked I performed in collaboration with my co-inventors Les Keay, Craig Keenan, and William Shaefer.
4. The invention disclosure document t(Exhibit "A") and post invention disclosure document (Exhibit "B") have creation/modification dates of May 8, 2003 and May 20, 2003, respectively.

5. The answer to question 2 on page 5 of the invention disclosure document (Exhibit "A") indicates that the invention of the present application was implemented or otherwise shown to be workable as of the date of the invention disclosure document (May 8, 2003).

6. The present application was filed on September 18, 2003 which is less than four months from the creation/modification date of the post invention disclosure document (Exhibit "B") and four months and ten days from the creation/modification date of the invention disclosure document (Exhibit "A").

7. During the time period between the creation of the invention disclosure document (Exhibit "A") and post invention disclosure document (Exhibit "B"), and the filing of the present application, I was diligent in working with counsel in the preparation of the present patent application.

8. The Engelking et al. reference (U.S. Patent Application Publication No. 2005/0049911) has a filing date of August 29, 2003 and a publication date of March 3, 2005.

9. I, along with my co-inventors, invented the subject matter of the present claims, as evidenced by the attached invention disclosure document (Exhibit "A") and post invention disclosure document (Exhibit "B"), prior to August 29, 2003 filing date of the Engelking et al. publication.

John Ricketts  
John Ricketts

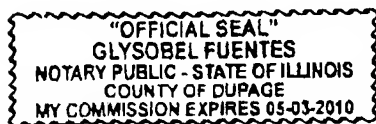
1/23/2008  
Date

State of Illinois

(SS)

County of Du Page

On this 23<sup>rd</sup> day of January, 2008, before me, the undersigned notary public, personally appeared John Ricketts, known to me to be the person whose name is subscribed to the within instrument and acknowledged that he executed the same for the purposes therein contained.



Glysofel Fuentes  
Notary Public



**Disclosure AUS8-2003-0823**

Prepared for and/or by an IBM Attorney - [REDACTED]

Created By John Ricketts On 05/08/2003 10:58:16 AM EDT

Last Modified By John Ricketts On 05/08/2003 03:44:20 PM EDT

Required fields are marked with the asterisk ( \* ) and must be filled in to complete the form .

**\* Title of disclosure (in English)**

Simulator for Business Transformation Outsourcing of Sourcing, Procurement and Payables

**Summary**

Status	Under Evaluation
Final Deadline	
Final Deadline Reason	
*Processing Location	Austin
*Functional Area	[REDACTED]
Attorney/Patent Professional	David Mims/Austin/IBM
IDT Team	[REDACTED]
Submitted Date	05/08/2003 01:54:35 PM EDT
*Owning Division	[REDACTED]
*Line of Business	[REDACTED]
*Industry/Sector	Other
*Competency	Other
Incentive Program	
Lab	
*Technology Code	[REDACTED]
PVT Score	

**Inventors with a Blue Pages entry**

Inventors: John Ricketts/Chicago/IBM, Les Keay/Ontario/IBM, Craig Keenan/Chicago/IBM, Bill Schaefer/Raleigh/IBM

Inventor Name	Inventor Serial	Div/Dept	Inventor Phone	Manager Name
> Ricketts, John A.	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]

Keay, Les (L.)  
Keenan, Craig A.  
Schaefer, William S. (Bill)

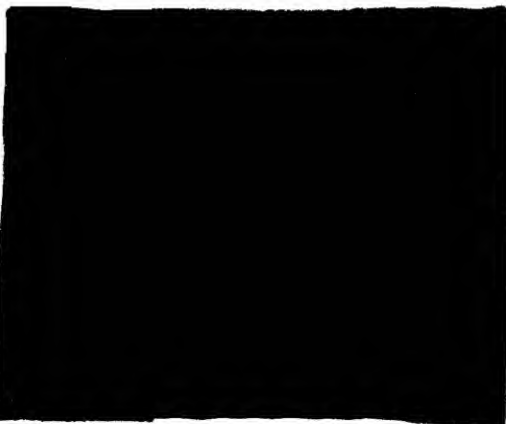
> denotes primary contact

### Inventors without a Blue Pages entry

#### IDT Selection

Attorney/Patent Professional  
IDT Team

David Mims/Austin/IBM



#### \*Main Idea

1. Background: What is the problem solved by your invention? Describe known solutions to this problem (if any). What are the drawbacks of such known solutions, or why is an additional solution required? Cite any relevant technical documents or references.

Business Transformation Outsourcing (BTO) is emerging from Business Process Outsourcing (BPO). Under BPO, an outsourcer assumes responsibility for performing one or more business processes that were previously done by the outsourcee or by another outsourcer. Business processes targeted for outsourcing are often not core businesses processes of the outsourcee. For instance, accounting and human resources are not core business processes unless the business generates its revenue primarily through its accounting or human resources services. When outsourced, the business processes themselves are typically changed only slightly, if at all, but lower labor rates generally enable an overall reduction in the cost of performing the business processes. Information technology may or may not play a significant role in reducing the cost of the business processes.

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around the world. Likewise, hundreds of millions of dollars worth of assets may be involved. Even if the outsourcing transaction is smaller financially and limited to one country, other dimensions of the transaction, such as computers, software applications, and communication networks, may be quite complex. Moreover, the array of alternatives that should be considered is huge.

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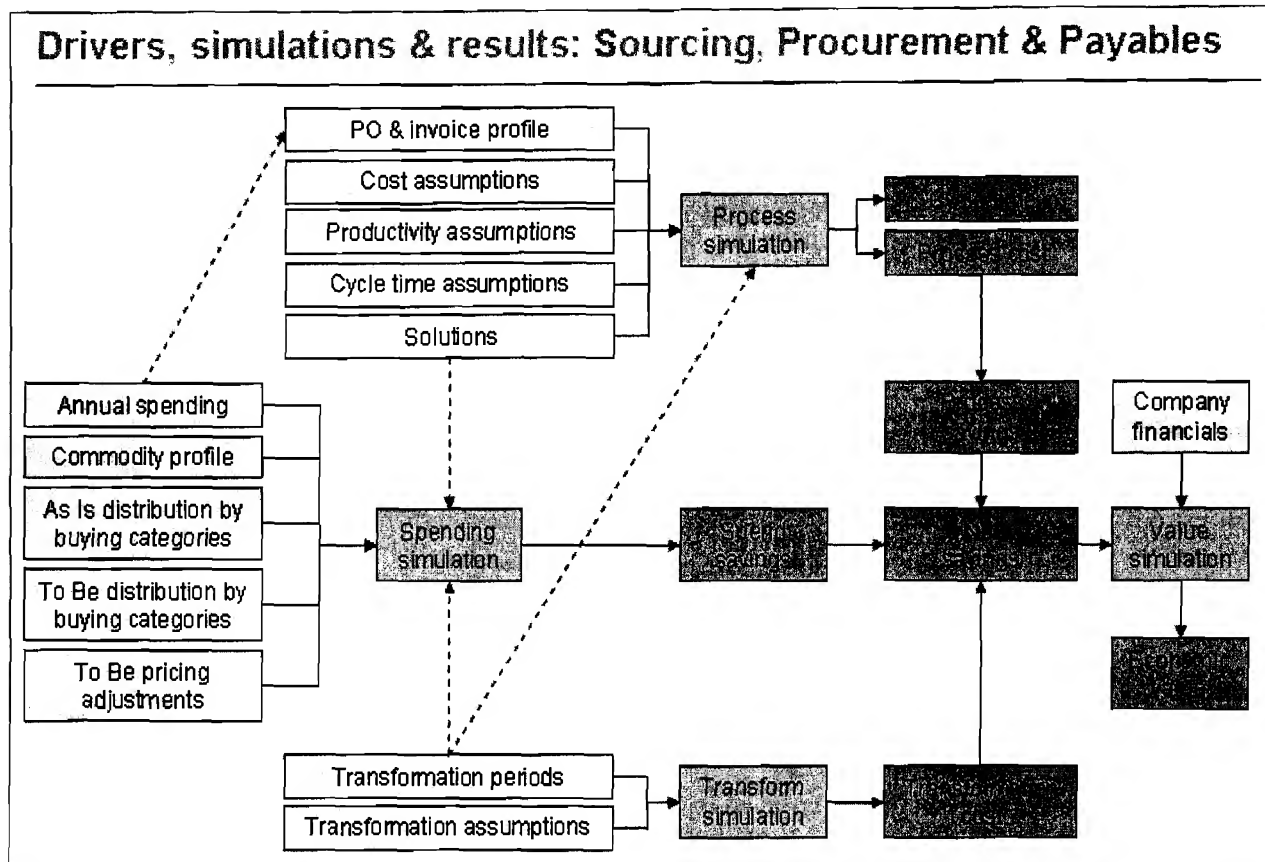
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The principal advantage of this invention is it makes what would otherwise be an unsolvable problem solvable.

3. Description: Describe how your invention works, and how it could be implemented, using text, diagrams and flow charts as appropriate.

This invention encompasses four interlocking simulations, as illustrated in this diagram:



(1) **Spending simulation** -- The outsourcee's total spending is simulated as it is today (the As Is view) and as it could be (the To Be view), subject to an assortment of assumptions and alternatives, including adoption of information technology (such as on-line catalogs and electronic settlement) and pricing discounts due to strategic sourcing.

(2) **Process simulation** -- A flow model shows how transactions flow through the subprocesses underlying sourcing, procurement, and payables. The rate at which information technology and lower-cost resources are substituted for the old way of performing the business process affects how many transactions there are, where they flow, and what they each cost to process.

(3) **Transform simulation** -- The tasks needed to design, build, implement, and operate the new information technology (and retire old IT) are simulated.

(4) **Value simulation** -- The effects of net savings from the previous simulations on the outsourcee's financial position are simulated. So are other alternatives with financial impact, such as acquisition of assets in conjunction with BTO.

#### \*Patent Value Tool

- \* 1. Select the single most appropriate technology category for your invention from the following technologies list.

[Redacted list of technology categories]

Are there any additional significant markets where the invention is likely to have impact?

☒ Yes ☐ No

Please identify them:

[REDACTED]

\*2. Have you implemented the invention (e.g., made a prototype) or otherwise shown that it is workable?

☒ Yes ☐ No

\*3. Has the subject matter of the invention or a product incorporating the invention been offered for sale, or is it likely to be offered for sale, as part of an IBM product or service?

[REDACTED]

\*4. Has the invention been commercially used (internally or externally) by IBM or another entity (e.g., included in or used to make products, or prototypes provided to a customer)?

[REDACTED]

\*5. In what type of product might a competitor include the invention?

[REDACTED]

What competitor(s) (indicate home country of such competitors if not United States)?

[REDACTED]

\*7. Is the invention applicable to a standard?

[REDACTED]

\*8. Have you, or any of the other inventors, submitted this invention disclosure or a similar invention disclosure previously?

[REDACTED]

9. Please list the invention disclosures (previously submitted or about to be submitted), products, patents, or publications that you and the other inventors feel are the most relevant to your invention (e.g., pertaining to the problem you are solving, including other solutions to the problem), be they from you or anyone else, or if not applicable, enter "None":

[REDACTED]

\* 10. Was the invention made in the course of any activity that involved any other party, be it

- The government
- A customer (such as an RFQ)
- A development partner
- An alliance
- Any contract activity
- As part of a standards setting activity
- Other persons not employed by IBM

[REDACTED]

**\*11.** Have you ever disclosed your invention to anyone outside IBM, or do you plan to do so in the future?

[REDACTED]

Please tell us whether the disclosure was (or will be) made, how made (or to be made), and whether or not there was (or is) a confidential disclosure agreement (CDA) in place covering the disclosure:

[REDACTED]

**12.** If the invention relates to a product or service that is outside the scope of your business unit, please recommend IBM business unit(s), IBM location(s) or individual(s) within IBM that you think would provide a competent evaluation of your invention:

[REDACTED]

**\*PVT II**

**All of the questions below are required and must be answered in order to calculate a PVT Score**

**A.Threshold Questions**

**\*1. Operability** - Is there an identifiable operable embodiment of the invention (i.e., an embodiment that has been demonstrated or that would be reasonably expected to provide the benefits of the invention)?

☐ Yes ☐ No

Reasons for above answer:

**\*2. Novelty**- Are one or more concept(s) of the invention novel over what is already known in the literature, existing commercial products, patents, and earlier IBM invention disclosures?

☐ Yes ☐ No

Reasons for above answer:

**B.Valuation Questions**

**\*1. Adequacy of Description:**

- ☐ Inadequate; invention unclear from description
- ☐ Incomplete; essential features missing
- ☐ Further clarification or implementation detail needed
- ☐ Clear and complete as is

State reason for answer:

**\*2. Technical contribution of invention:**

- ☐ None
- ☐ Minor addition to known technology
- ☐ Significant addition to known technology
- ☐ Major advance in technology

Reasons for above answer:

**\*3.** Describe the problem solved/benefit provided and the implementation cost of the invention compared to existing or reasonably expected alternatives:

- ☐ Minor problem/incremental benefit - significant implementation cost
- ☐ Significant problem; substantial benefit - significant implementation cost
- ☐ Minor problem/incremental benefit - minor implementation cost
- ☐ Significant problem/substantial benefit - minor implementation cost

**\*4. Are any alternatives to the invention available to those wishing to avoid its use?**

- ☐ Suitable alternatives available
- ☐ Alternatives have drawbacks
- ☐ No feasible alternatives

Reasons for above answer:

**\*5. Describe the likelihood of use of the invention (answer each):**

- IBM's customers? ☐ Unlikely ☐ Possible ☐ Probable ☐ Definite
- IBM's suppliers/vendors? ☐ Unlikely ☐ Possible ☐ Probable ☐ Definite
- IBM's competitors? ☐ Unlikely ☐ Possible ☐ Probable ☐ Definite
- IBM? ☐ Unlikely ☐ Possible ☐ Probable ☐ Definite

Reasons for above answer:

**\*6. What % of third party products in the technical field will likely contain the invention?**

- ☐ < 25%
- ☐ 25-50%
- ☐ 50-75%
- ☐ > 75%

Reasons for above answer:

**\*7. How long is the invention likely to be used in products by IBM or others?**

- ☐ < 5 years
- ☐ 5-10 years
- ☐ 10-15 years
- ☐ > 15 years

Reasons for above answer:

**\*8. How easily can use of the invention by a third party be detected?**

- ☐ Undiscoverable; third party must admit use for IBM to know
- ☐ Difficult; e.g.; with reverse engineering or examination of available code
- ☐ With work; e.g.; using test cases; but not reverse engineering
- ☐ Easily; by running & viewing product operation
- ☐ Trivially; without purchase of product; e.g.; by reading product literature

Reasons for the above answer, including description of how use could be detected:

### Post Disclosure Text & Drawings

To add additional information related to this disclosure once it has been submitted, click the action button below and a new document will be opened for you to enter the new information. To view existing post disclosure information, double-click on the item in the list below (if there has been additional information entered), and the document will open for you to view.

Date entered	Post disclosure information (comments and drawings)
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Form Revised 09/01/02]





## Post Disclosure Information for AUS8-2003-0823

Prepared for and/or by an IBM Attorney - [REDACTED]

Created By John Ricketts On 05/20/2003 06:50:26 PM EDT

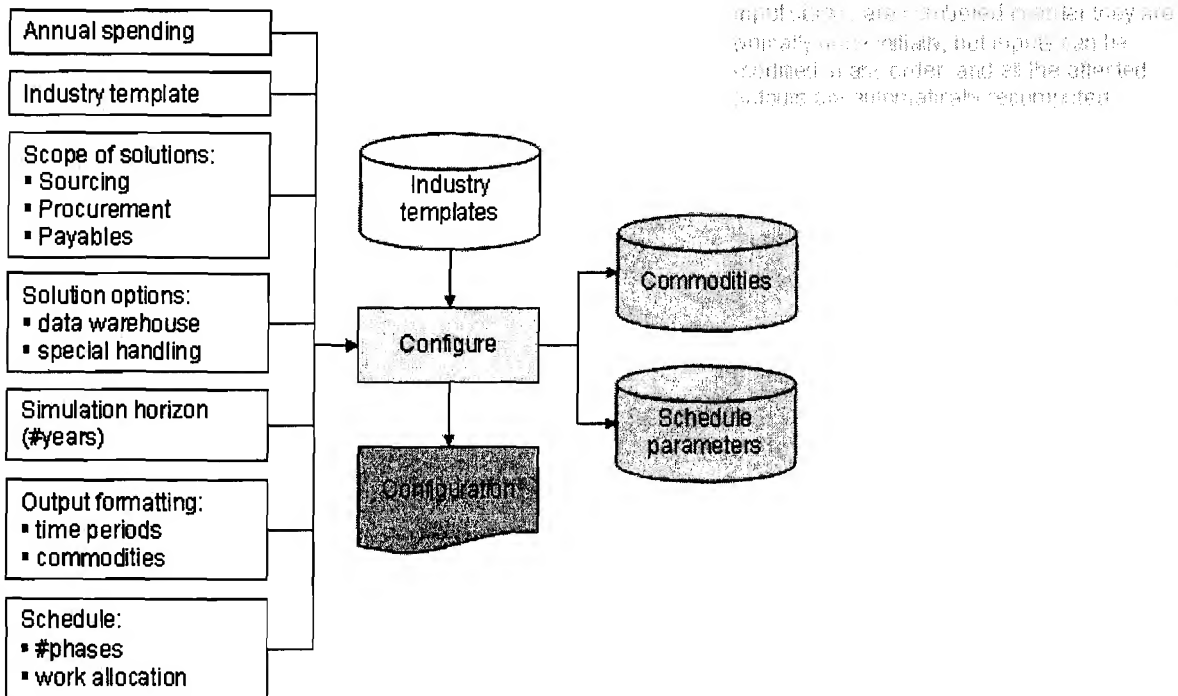
Last Modified By John Ricketts On 05/20/2003 07:08:41 PM EDT

Required fields are marked with the asterisk ( \* ) and must be filled in to complete the form .

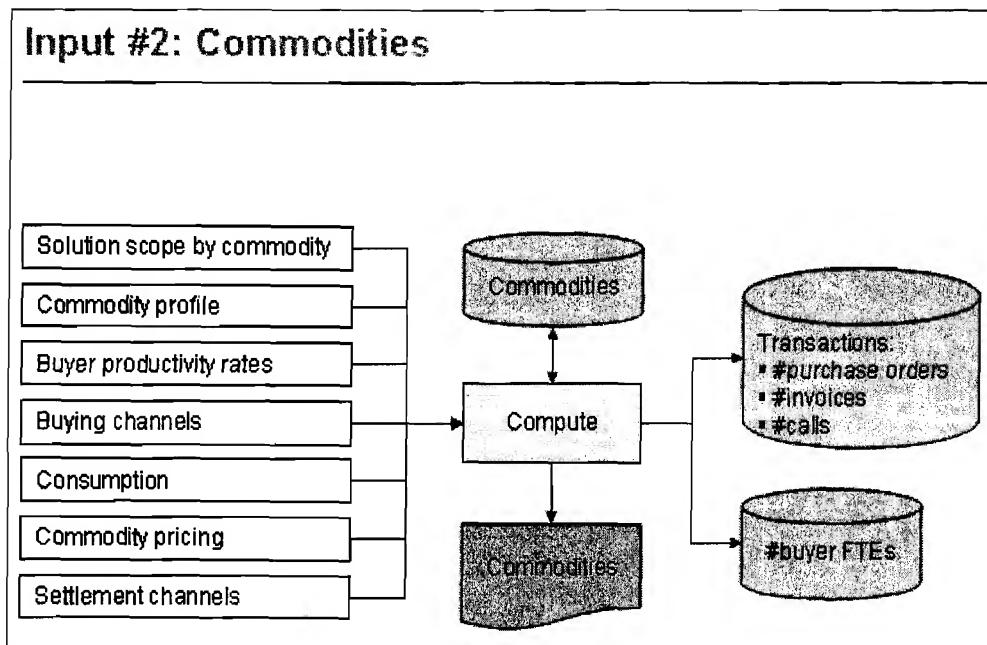
The following people are responsible for these comments John Ricketts/Chicago/IBM

The inputs, simulations, and outputs are further described below.

### Input #1: Configurator

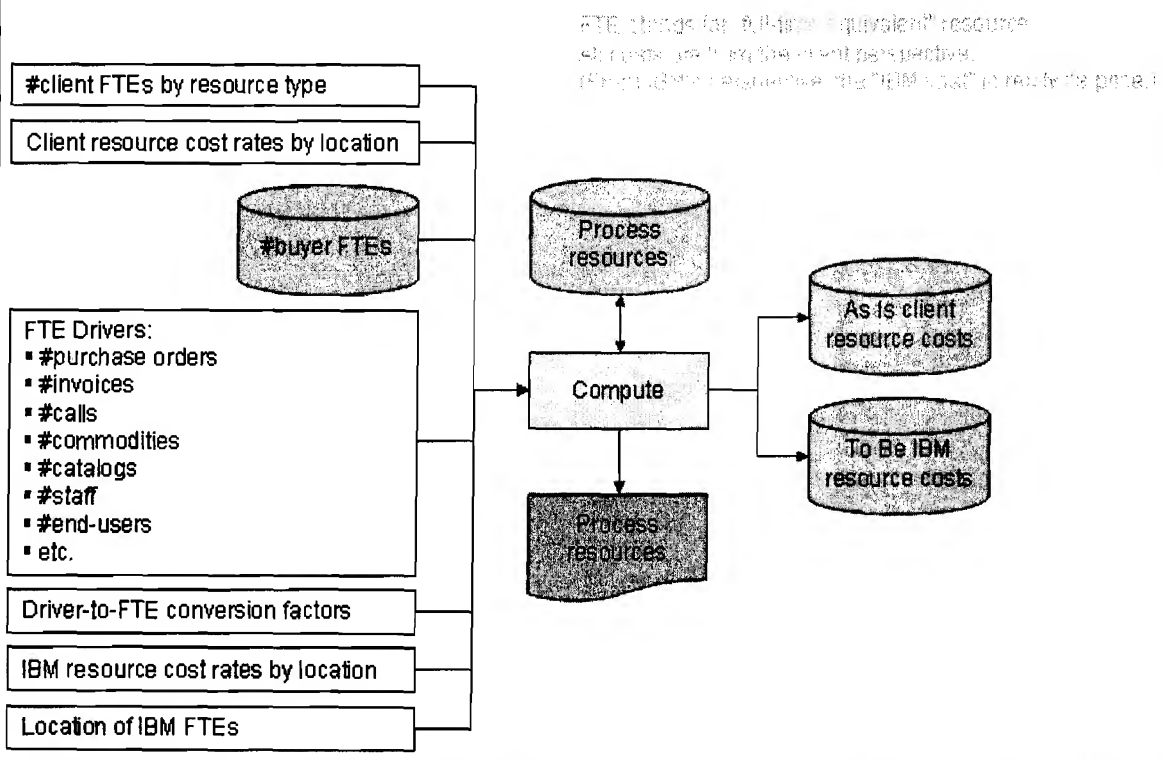


The first input is to a configurator that sets up the simulations. Annual spending drives the spending simulation. Selection of an industry template pre-populates a set of commodities appropriate to that industry. The scope of solutions determines which business processes IBM will perform for the client. Solution options are additional products and services that could be provided in support of those business processes. The simulation horizon determines the number of years of simulated time the simulations will cover. Output formatting controls the amount of detail in outputs: (1) monthly, quarterly, or yearly summaries and (2) commodity-level details. Schedule inputs control (1) the number of IT implementation phases and the amount of work done in each and (2) when the transition from the As Is to To Be processes will occur. Data prepared by the configurator includes commodities and schedule parameters. Finally, inputs to and data from the configurator can be displayed or printed.



The next set of inputs modify and extend the commodities with data about the client (i.e., IBM's customer). Some customers buy commodities that are not in the standard industry template, so the commodities set itself is editable. Active solutions can be taken out of scope for specific commodities. The commodity profile includes typical transaction size (used later to compute the number of purchase orders (POs), invoices, and calls that a given amount of annual spending generates), the portion of transactions that can be processed automatically versus manually, and the number of POs that generate spending over multiple years. Buyer productivity rates are the numbers of POs a buyer can handle per day for each commodity, which is used to compute the number of buyers needed. Buying channels describe how much buying the client does today ("As Is") through its standard process, if any, versus how much it will do later ("To Be") through the IBM standard automated process. Consumption is the decrease in spending that will result from having a standard process or increase in spending that will result from growth in the client's business. Commodity pricing is the discount obtained via strategic sourcing if that solution is in scope. Settlement channels describe how much payment the client does manually today versus how much will be automated via the IBM standard process. Data prepared by this input stage includes (1) the number of As Is versus To Be transactions and (2) the number of buyers needed to support those transactions. Finally, inputs to and data from this input stage can be displayed or printed.

### Input #3: Process resources

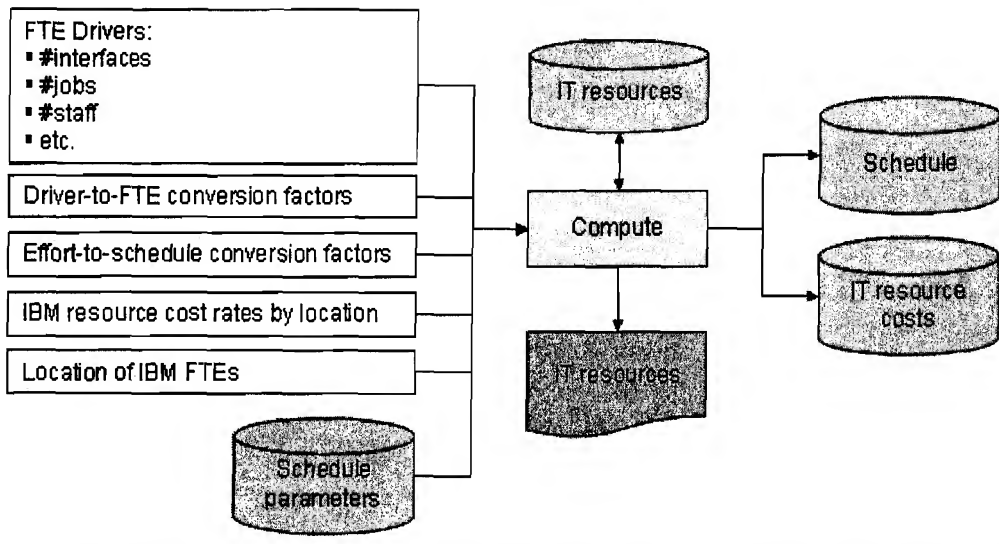


The next set of inputs define the human resources needed to perform the business processes today ("As Is") and during outsourcing ("To Be"). The number of full-time equivalent (FTE) resources the client uses today, plus their cost rates by location, are entered. Since clients may have resource types that are not in the standard set, the resource types set is editable. The number of IBM buyers needed was pre-computed during the previous input stage. The number of other IBM resources needed is computed by (1) entering an appropriate FTE driver for each resource type, (2) looking up the number of occurrences of each driver, and (3) dividing the number of occurrences by a conversion factor. The resulting resource counts are then multiplied times the cost rate for each FTE's location to get As Is and To Be resource costs. (Selecting the right mix of on-site, on-shore, and off-shore resources is key to achieving service level agreements at a competitive price.) Finally, inputs to and data from this input stage can be displayed or printed.

## Input #4: IT resources

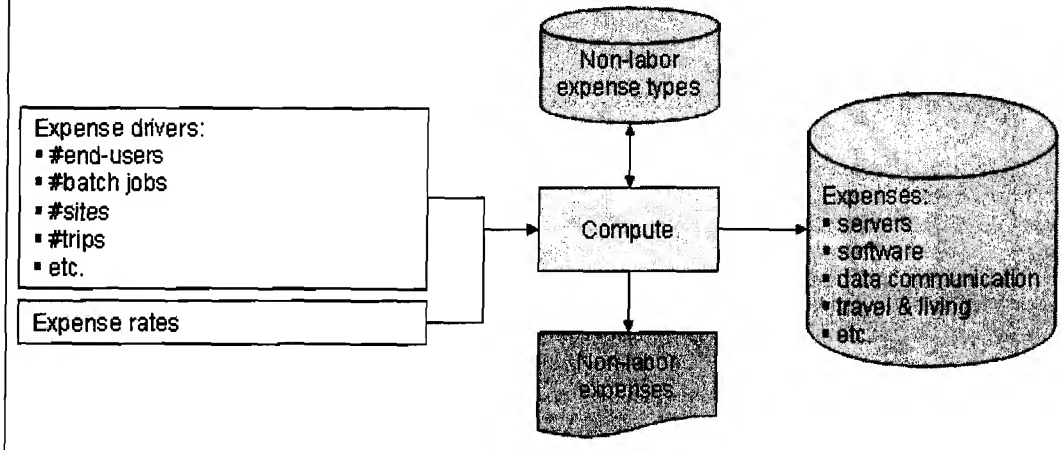
IT stands for "Information Technology"

FTE stands for "full time equivalent" resource



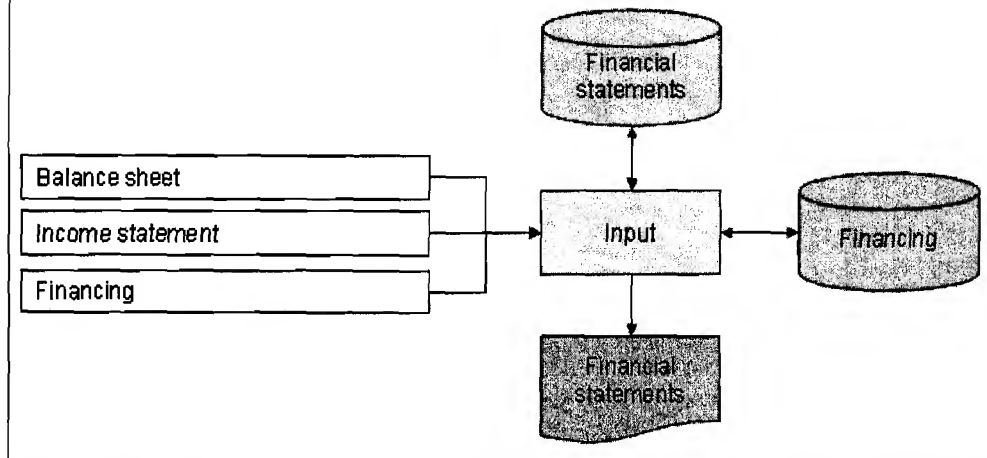
The next set of inputs define the information technology (IT) resources needed to achieve the transformation from As Is to To Be processes. IT resources are computed separately from non-IT resources because (1) there are no As Is resources to simulate and (2) some IT resources are needed for only a limited time, whereas non-IT resources are needed for the entire simulation. The IT resource type set is editable to accommodate special needs. For each resource type, the number of occurrences of an appropriate driver is divided by a conversion factor that yields work effort. The total work effort for finite-time activities (Design & Build and Implementation) and schedule parameters are used to compute the schedule. The schedule recognizes that completion of the finite-time activities initiates the on-going IT activities (Operation). Then FTEs needed to meet that schedule are computed. Resource counts are multiplied by cost rate for each FTE's location to get IT resource costs.

### Input #5: Non-labor expenses



The next set of inputs define non-labor expenses. The non-labor expense types set is editable. For each non-labor expense type, the number of occurrences of an appropriate expense driver is multiplied by the corresponding expense rate.

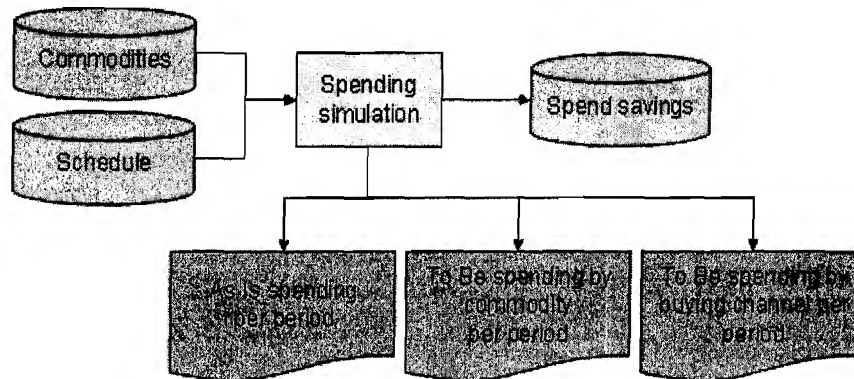
### Input #6: Finances



The last set of inputs includes the client's balance sheet and income statement, along with any IBM financial transactions, such as asset acquisition or financing of fees.

## Simulation #1: Spending

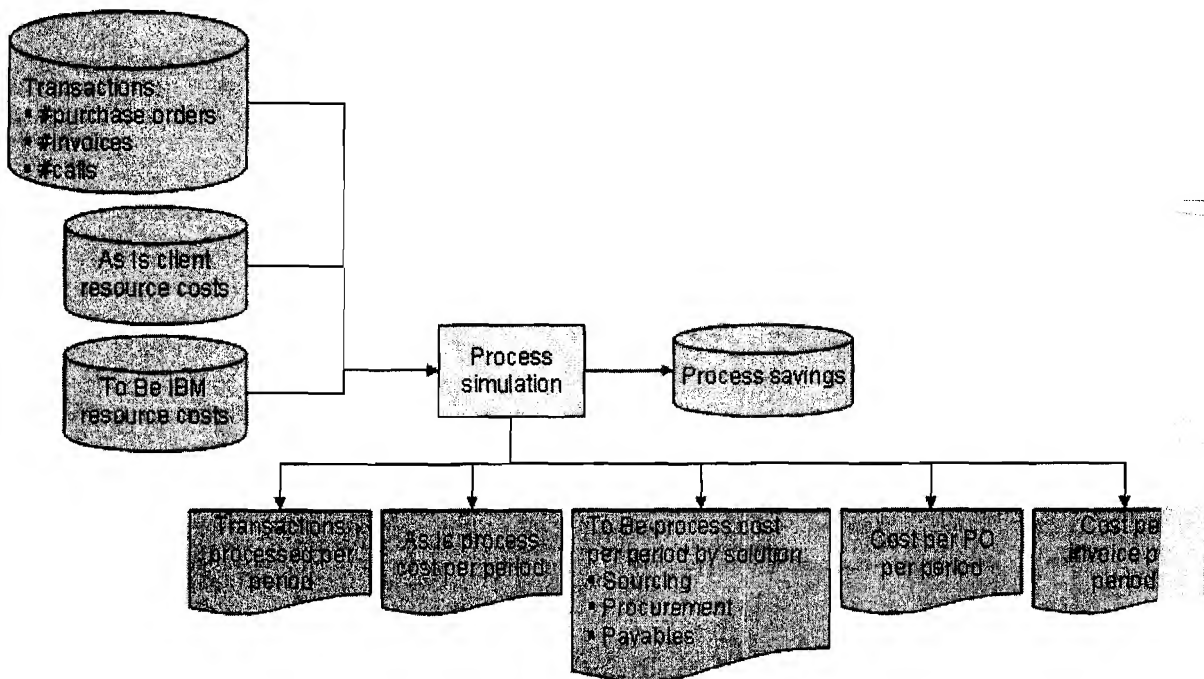
Spending data are numbered for reference, but a change in the # is automatically reflected in all the others, if applicable.



The spending simulation computes the amount of spending by commodity and by buying channel for each period, subject to the status of each period (As Is, Transition, or To Be) as well as changes in consumption, commodity pricing, and degree of compliance with the standard process.

(Non-compliant spending costs more because pricing discounts cannot be achieved.) Using the first As Is period as a baseline, spend savings is computed for each As Is period and cumulatively to the simulation horizon.

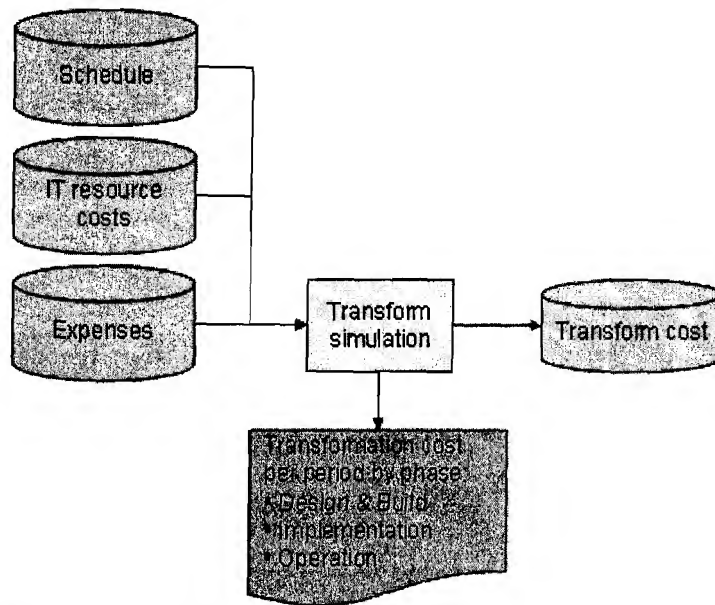
## Simulation #2: Process



The process simulation computes the number of transactions (POs, invoices, calls) during each

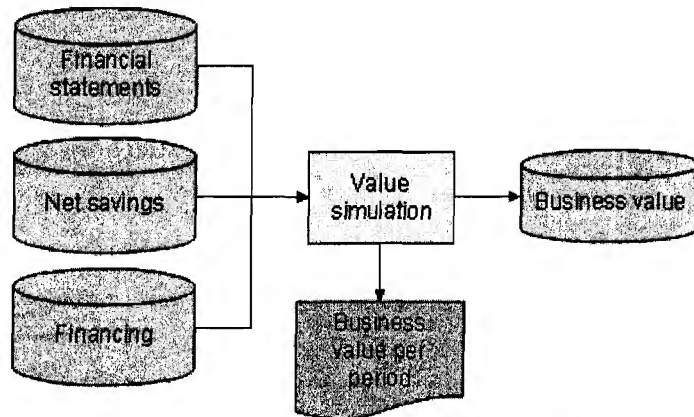
period, subject to the status of each period (As Is, Transition, or To Be) as well as changes in consumption and degree of compliance with the standard process. (Non-compliant transactions cost more because they cannot be automated.) This business process simulation is a flow model, [REDACTED] It shows how many transactions flow through each business process during each period, but does not simulate the processing of each individual transaction. Process cost per period by solution (Sourcing, Procurement, Payables) is computed from resource costs, adjusted for transaction volumes. Cost per PO and invoice per period are computed as total cost divided by number of transactions.

### Simulation #3: Transformation



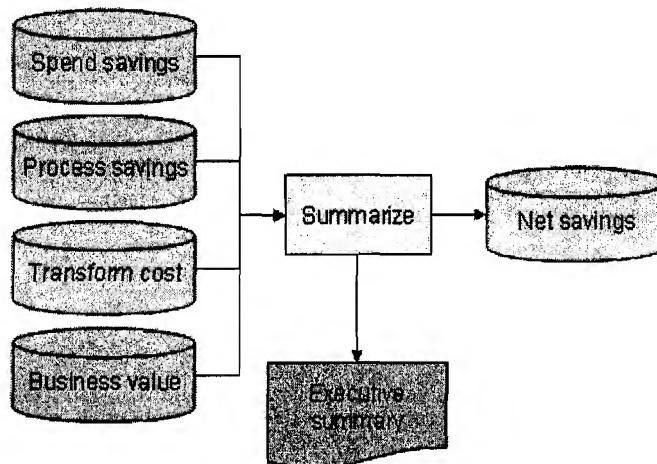
The transform simulation computes transformation cost per period by phase using IT resource costs and expenses, subject to the schedule. Phases can be serial, overlapping, or concurrent. They tend to be serial when the scope of work can be decomposed into independent releases. They tend to be overlapping or concurrent when the same work must be accomplished at multiple locations.

### Simulation #4: Value



The value simulation computes the impact of the net savings on the client's financial statements, subject to additional financial transactions, such as asset acquisition or financing of fees. When the client's cost of capital is considered, the impact of net savings from Business Transformation Outsourcing can be substantial.

### Executive summary of simulations



An executive summary of the simulations (1) computes the net savings used in the value simulation and (2) summarizes the results of all the simulations. Spend savings plus process savings minus transform cost equals net savings.

All the simulations are discrete rather than continuous. When run for clients, the simulations are deterministic. But when run for internal research purposes and risk management, they are stochastic (i.e., random variability can be injected and the simulations run many times to quantify



expected values).

The simulations do not embody optimization models. BTO engagements are far too complex overall to apply any familiar optimization algorithm. Indeed, this is the principal reason for using simulations rather than analytical models to build business cases.

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re application: <b>Keay et al.</b>	§	Group Art Unit: <b>4114</b>
	§	
	§	
Serial No.: <b>10/666,868</b>	§	Examiner: <b>Park, George M.</b>
	§	
Filed: <b>September 18, 2003</b>	§	Attorney Docket No.: <b>AUS920030590US1</b>
	§	
For: <b>Simulation of Business</b>	§	Customer No. <b>50170</b>
<b>Transformation Outsourcing of</b>	§	
<b>Sourcing, Procurement and Payables</b>		

**Declaration Under 37 CFR 1.131**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

I, William Schaefer, a named inventor in the present U.S. Patent Application Serial No. 10/666,868, do hereby certify, swear or affirm, and declare, under penalty of perjury, that I am competent to give the following declaration based on my personal knowledge, unless otherwise stated, and that the following facts and things are true and correct to the best of my knowledge:

1. I am an inventor of the subject matter claimed in the pending claims of the present application.
2. The present application and claimed subject matter were drafted based on the invention disclosure document (Exhibit "A") and post invention disclosure document (Exhibit "B") attached hereto.
3. The invention disclosure document (Exhibit "A") and post invention disclosure document (Exhibit "B") were drafted by my co-inventor, John Ricketts, based on work I performed in collaboration with my co-inventors John Ricketts, Les Keay, and Craig Keenan.
4. The invention disclosure document (Exhibit "A") and post invention disclosure document (Exhibit "B") have creation/modification dates of May 8, 2003 and May 20, 2003, respectively.

5. The answer to question 2 on page 5 of the invention disclosure document (Exhibit "A") indicates that the invention of the present application was implemented or otherwise shown to be workable as of the date of the invention disclosure document (May 8, 2003).

6. The present application was filed on September 18, 2003 which is less than four months from the creation/modification date of the post invention disclosure document (Exhibit "B") and four months and ten days from the creation/modification date of the invention disclosure document (Exhibit "A").

7. During the time period between the creation of the invention disclosure document (Exhibit "A") and post invention disclosure document (Exhibit "B"), and the filing of the present application, I was diligent in working with counsel in the preparation of the present patent application.

8. The Engelking et al. reference (U.S. Patent Application Publication No. 2005/0049911) has a filing date of August 29, 2003 and a publication date of March 3, 2005.

9. I, along with my co-inventors, invented the subject matter of the present claims, as evidenced by the attached invention disclosure document (Exhibit "A") and post invention disclosure document (Exhibit "B"), prior to August 29, 2003 filing date of the Engelking et al. publication.

  
William Schaefer

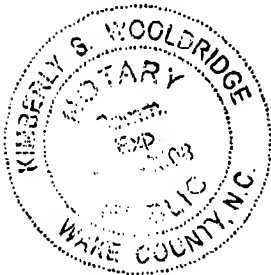
1-28-08  
Date

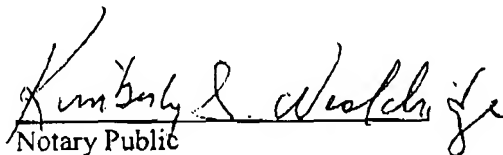
State of NORTH CAROLINA

(SS)

County of DURHAM

On this 28<sup>th</sup> day of JANUARY, 2008, before me, the undersigned notary public, personally appeared William Schaefer, known to me to be the person whose name is subscribed to the within instrument and acknowledged that he executed the same for the purposes therein contained.



  
Notary Public


**Disclosure AUS8-2003-0823**

Prepared for and/or by an IBM Attorney - [REDACTED]

Created By John Ricketts On 05/08/2003 10:58:16 AM EDT

Last Modified By John Ricketts On 05/08/2003 03:44:20 PM EDT

Required fields are marked with the asterisk ( \* ) and must be filled in to complete the form .

**\* Title of disclosure (in English)**

Simulator for Business Transformation Outsourcing of Sourcing, Procurement and Payables

**Summary**

Status	Under Evaluation
Final Deadline	
Final Deadline Reason	
*Processing Location	Austin
*Functional Area	[REDACTED]
Attorney/Patent Professional	David Mims/Austin/IBM
IDT Team	[REDACTED]
Submitted Date	05/08/2003 01:54:35 PM EDT
*Owning Division	[REDACTED]
*Line of Business	[REDACTED]
*Industry/Sector	Other
*Competency	Other
Incentive Program	
Lab	
*Technology Code	[REDACTED]
PVT Score	

**Inventors with a Blue Pages entry**

Inventors: John Ricketts/Chicago/IBM, Les Keay/Ontario/IBM, Craig Keenan/Chicago/IBM, Bill Schaefer/Raleigh/IBM

Inventor Name	Inventor Serial	Div/Dept	Inventor Phone	Manager Name
> Ricketts, John A.	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]

Keay, Les (L.)  
Keenan, Craig A.  
Schaefer, William S. (Bill)

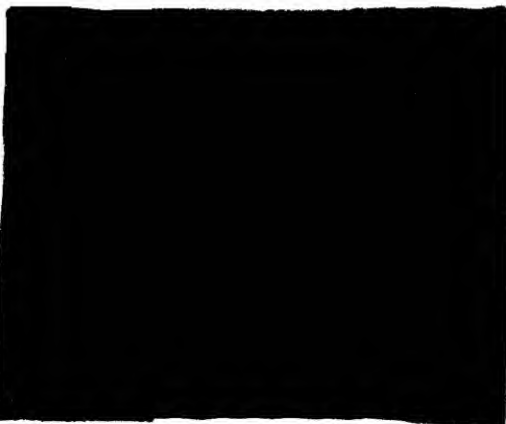
> denotes primary contact

### Inventors without a Blue Pages entry

#### IDT Selection

Attorney/Patent Professional  
IDT Team

David Mims/Austin/IBM



#### \*Main Idea

1. Background: What is the problem solved by your invention? Describe known solutions to this problem (if any). What are the drawbacks of such known solutions, or why is an additional solution required? Cite any relevant technical documents or references.

Business Transformation Outsourcing (BTO) is emerging from Business Process Outsourcing (BPO). Under BPO, an outsourcer assumes responsibility for performing one or more business processes that were previously done by the outsourcee or by another outsourcer. Business processes targeted for outsourcing are often not core businesses processes of the outsourcee. For instance, accounting and human resources are not core business processes unless the business generates its revenue primarily through its accounting or human resources services. When outsourced, the business processes themselves are typically changed only slightly, if at all, but lower labor rates generally enable an overall reduction in the cost of performing the business processes. Information technology may or may not play a significant role in reducing the cost of the business processes.

Under BTO, business processes are also assumed by an outsourcer, but the business processes themselves may be substantially changed -- often through information technology. Furthermore, the business processes being outsourced are somewhat more likely to be core processes. For instance, to a web-based retailer, shipping is a core business process that's usually outsourced because the outsourcers have more advanced technology and much larger scale. Likewise, to a telemarketer, its Customer Relationship Management (CRM) is a core business process that may be amenable to transformational outsourcing. In such cases, the business transformation goes beyond just cost reduction. The outsourcer may be able to provide substantially higher service levels, such as fewer lost calls, shorter hold times, and higher customer/employee satisfaction. A transformational outsourcer may also be able to drive a change in the outsourcee's business strategy, for example, by serving global rather than just national markets. Furthermore, the outsourcer may be able to enhance the outsourcee's financial condition, for example, by financing the outsourcing and/or by acquiring some of the outsourcee's assets that it no longer needs to perform the processes.

Like Information Technology Outsourcing (ITO), BTO deals are often large, extremely complex transactions. They may involve thousands of employees and business partners at hundreds of sites

around the world. Likewise, hundreds of millions of dollars worth of assets may be involved. Even if the outsourcing transaction is smaller financially and limited to one country, other dimensions of the transaction, such as computers, software applications, and communication networks, may be quite complex. Moreover, the array of alternatives that should be considered is huge.

Without tools, however, it's difficult to explore more than a handful of alternatives -- and examining the interacting effects of many factors over time is simply impossible. This is a fundamental problem faced by both outsourcees and outsourcers. Since the calculations are far too complicated for an analytical solution, simulating BTO deals, and thereby examining many alternatives, is a practical way to evaluate the business value and risks for all parties.

This invention is a simulator for BTO of sourcing, procurement, and payables. No prior solutions to this problem are known.

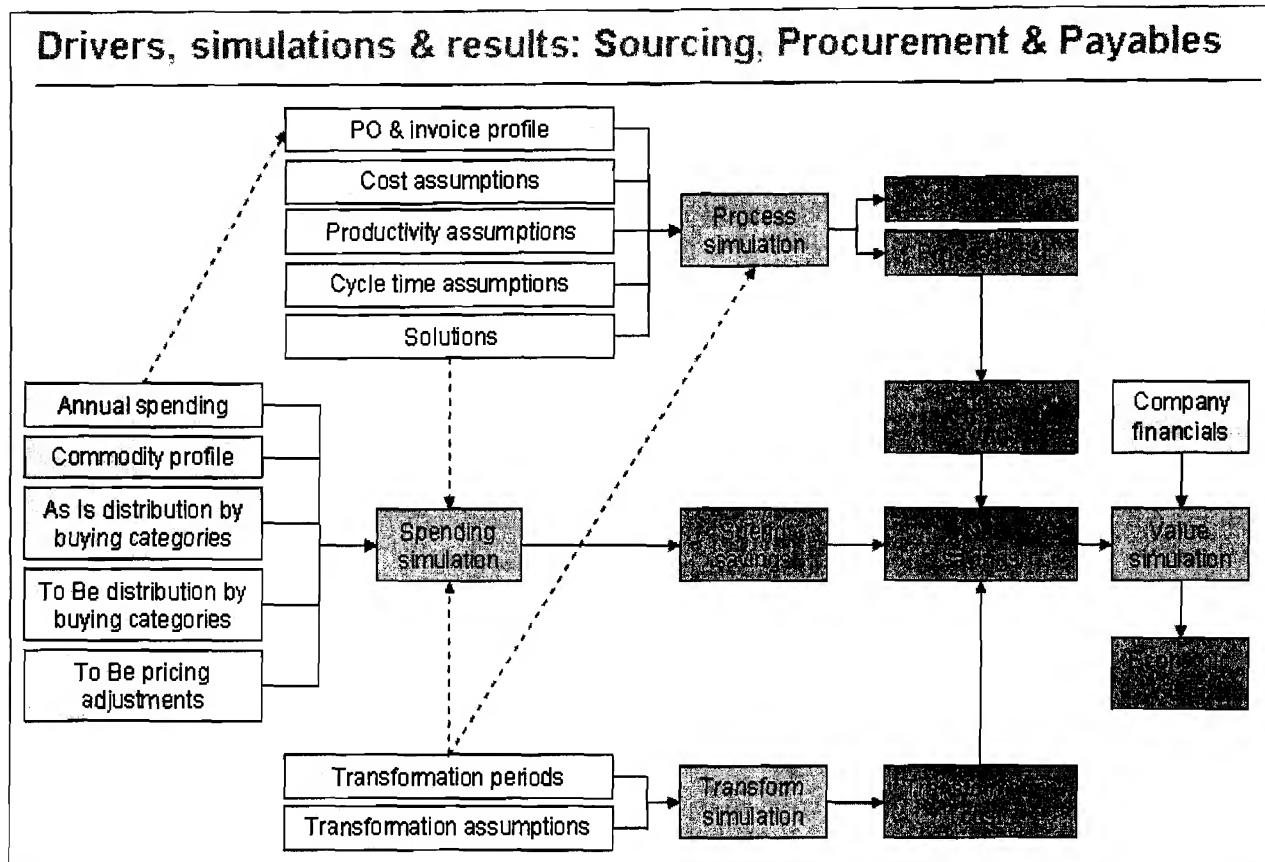
2. Summary of Invention: Briefly describe the core idea of your invention (saving the details for questions #3 below). Describe the advantage(s) of using your invention instead of the known solutions described above.

This invention shows the effects over time of various conditions and decisions pertaining to Business Transformation Outsourcing (BTO) of sourcing, procurement, and payables. For example, by strategically sourcing commodities that have not been sourced before, substantial pricing discounts on behalf of the outsourcee may be possible. Likewise, procuring and paying for commodities via automated systems may be significantly faster and less costly than performing these processes manually. Thoroughly analyzing the effects of these and other alternatives over a multi-commodity, multi-year, multi-site deal is something that cannot be done without a BTO simulator.

The principal advantage of this invention is it makes what would otherwise be an unsolvable problem solvable.

3. Description: Describe how your invention works, and how it could be implemented, using text, diagrams and flow charts as appropriate.

This invention encompasses four interlocking simulations, as illustrated in this diagram:



- (1) **Spending simulation** -- The outsourcee's total spending is simulated as it is today (the As Is view) and as it could be (the To Be view), subject to an assortment of assumptions and alternatives, including adoption of information technology (such as on-line catalogs and electronic settlement) and pricing discounts due to strategic sourcing.
- (2) **Process simulation** -- A flow model shows how transactions flow through the subprocesses underlying sourcing, procurement, and payables. The rate at which information technology and lower-cost resources are substituted for the old way of performing the business process affects how many transactions there are, where they flow, and what they each cost to process.
- (3) **Transform simulation** -- The tasks needed to design, build, implement, and operate the new information technology (and retire old IT) are simulated.
- (4) **Value simulation** -- The effects of net savings from the previous simulations on the outsourcee's financial position are simulated. So are other alternatives with financial impact, such as acquisition of assets in conjunction with BTO.

#### \*Patent Value Tool

- \* 1. Select the single most appropriate technology category for your invention from the following technologies list.

[REDACTED]

Are there any additional significant markets where the invention is likely to have impact?  
☒ Yes ☐ No

Please identify them:

[REDACTED]

\*2. Have you implemented the invention (e.g., made a prototype) or otherwise shown that it is workable?

☒ Yes ☐ No

\*3. Has the subject matter of the invention or a product incorporating the invention been offered for sale, or is it likely to be offered for sale, as part of an IBM product or service?

[REDACTED]

\*4. Has the invention been commercially used (internally or externally) by IBM or another entity (e.g., included in or used to make products, or prototypes provided to a customer)?

[REDACTED]

\*5. In what type of product might a competitor include the invention?

[REDACTED]

What competitor(s) (indicate home country of such competitors if not United States)?

[REDACTED]

\*7. Is the invention applicable to a standard?

[REDACTED]

\*8. Have you, or any of the other inventors, submitted this invention disclosure or a similar invention disclosure previously?

[REDACTED]

9. Please list the invention disclosures (previously submitted or about to be submitted), products, patents, or publications that you and the other inventors feel are the most relevant to your invention (e.g., pertaining to the problem you are solving, including other solutions to the problem), be they from you or anyone else, or if not applicable, enter "None":

[REDACTED]

\* 10. Was the invention made in the course of any activity that involved any other party, be it

- The government
- A customer (such as an RFQ)
- A development partner
- An alliance
- Any contract activity
- As part of a standards setting activity
- Other persons not employed by IBM



[REDACTED]

**\*11.** Have you ever disclosed your invention to anyone outside IBM, or do you plan to do so in the future?

[REDACTED]

Please tell us whether the disclosure was (or will be) made, how made (or to be made), and whether or not there was (or is) a confidential disclosure agreement (CDA) in place covering the disclosure:

[REDACTED]

**12.** If the invention relates to a product or service that is outside the scope of your business unit, please recommend IBM business unit(s), IBM location(s) or individual(s) within IBM that you think would provide a competent evaluation of your invention:

[REDACTED]

**\*PVT II**

**All of the questions below are required and must be answered in order to calculate a PVT Score**

**A.Threshold Questions**

**\*1. Operability** - Is there an identifiable operable embodiment of the invention (i.e., an embodiment that has been demonstrated or that would be reasonably expected to provide the benefits of the invention)?

☐ Yes ☐ No

Reasons for above answer:

**\*2. Novelty**- Are one or more concept(s) of the invention novel over what is already known in the literature, existing commercial products, patents, and earlier IBM invention disclosures?

☐ Yes ☐ No

Reasons for above answer:

**B.Valuation Questions**

**\*1. Adequacy of Description:**

- ☐ Inadequate; invention unclear from description
- ☐ Incomplete; essential features missing
- ☐ Further clarification or implementation detail needed
- ☐ Clear and complete as is

State reason for answer:

**\*2. Technical contribution of invention:**

- ☐ None
- ☐ Minor addition to known technology
- ☐ Significant addition to known technology
- ☐ Major advance in technology

Reasons for above answer:

**\*3.** Describe the problem solved/benefit provided and the implementation cost of the invention compared to existing or reasonably expected alternatives:

- ☐ Minor problem/incremental benefit - significant implementation cost
- ☐ Significant problem; substantial benefit - significant implementation cost
- ☐ Minor problem/incremental benefit - minor implementation cost
- ☐ Significant problem/substantial benefit - minor implementation cost

**\*4. Are any alternatives to the invention available to those wishing to avoid its use?**

- ☐ Suitable alternatives available
- ☐ Alternatives have drawbacks
- ☐ No feasible alternatives

Reasons for above answer:

**\*5. Describe the likelihood of use of the invention (answer each):**

- IBM's customers? ☐ Unlikely ☐ Possible ☐ Probable ☐ Definite
- IBM's suppliers/vendors? ☐ Unlikely ☐ Possible ☐ Probable ☐ Definite
- IBM's competitors? ☐ Unlikely ☐ Possible ☐ Probable ☐ Definite
- IBM? ☐ Unlikely ☐ Possible ☐ Probable ☐ Definite

Reasons for above answer:

**\*6. What % of third party products in the technical field will likely contain the invention?**

- ☐ < 25%
- ☐ 25-50%
- ☐ 50-75%
- ☐ > 75%

Reasons for above answer:

**\*7. How long is the invention likely to be used in products by IBM or others?**

- ☐ < 5 years
- ☐ 5-10 years
- ☐ 10-15 years
- ☐ > 15 years

Reasons for above answer:

**\*8. How easily can use of the invention by a third party be detected?**

- ☐ Undiscoverable; third party must admit use for IBM to know
- ☐ Difficult; e.g.; with reverse engineering or examination of available code
- ☐ With work; e.g.; using test cases; but not reverse engineering
- ☐ Easily; by running & viewing product operation
- ☐ Trivially; without purchase of product; e.g.; by reading product literature

Reasons for the above answer, including description of how use could be detected:

#### **Post Disclosure Text & Drawings**

To add additional information related to this disclosure once it has been submitted, click the action button below and a new document will be opened for you to enter the new information. To view existing post disclosure information, double-click on the item in the list below (if there has been additional information entered), and the document will open for you to view.

Date entered	Post disclosure information (comments and drawings)
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Form Revised 09/01/02]



## Post Disclosure Information for AUS8-2003-0823

Prepared for and/or by an IBM Attorney - [REDACTED]

Created By John Ricketts On 05/20/2003 06:50:26 PM EDT

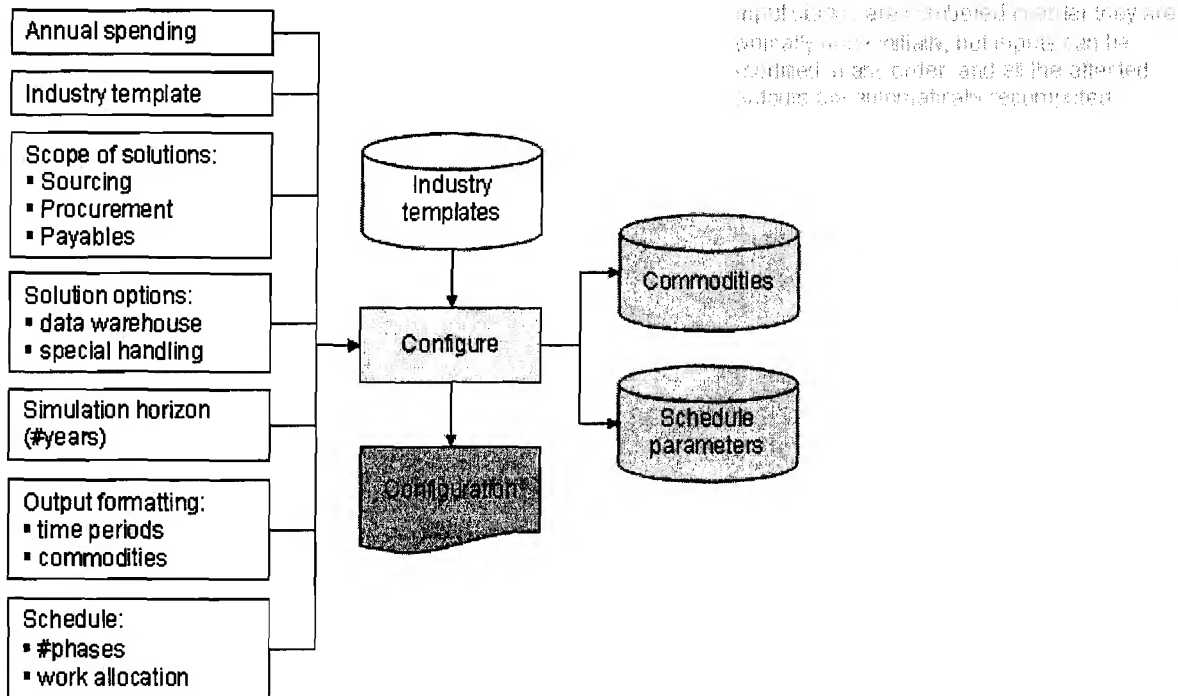
Last Modified By John Ricketts On 05/20/2003 07:08:41 PM EDT

Required fields are marked with the asterisk ( \* ) and must be filled in to complete the form .

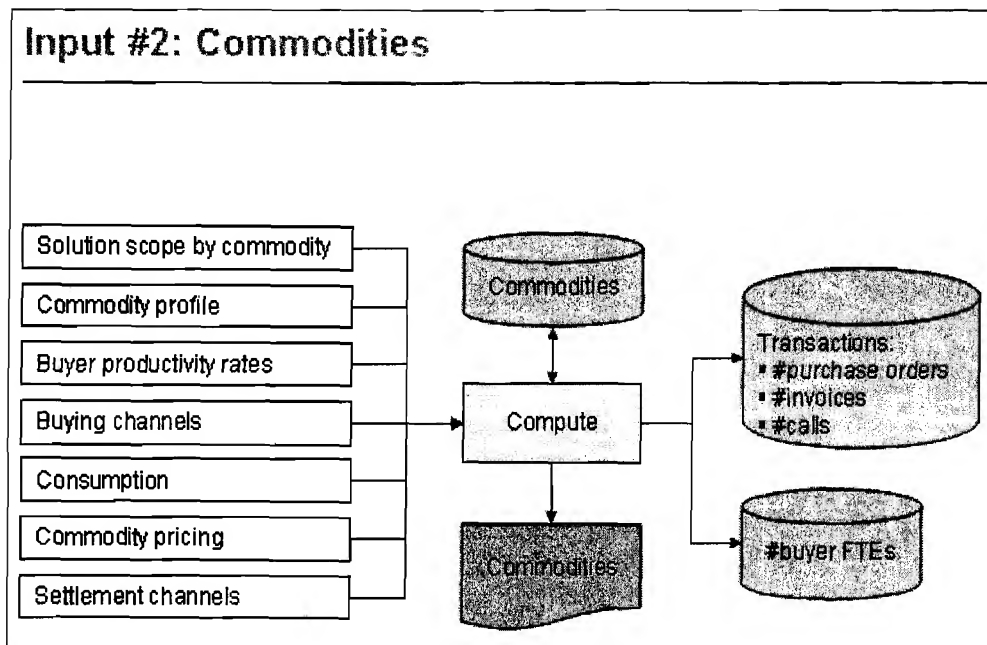
The following people are responsible for these comments John Ricketts/Chicago/IBM

The inputs, simulations, and outputs are further described below.

### Input #1: Configurator

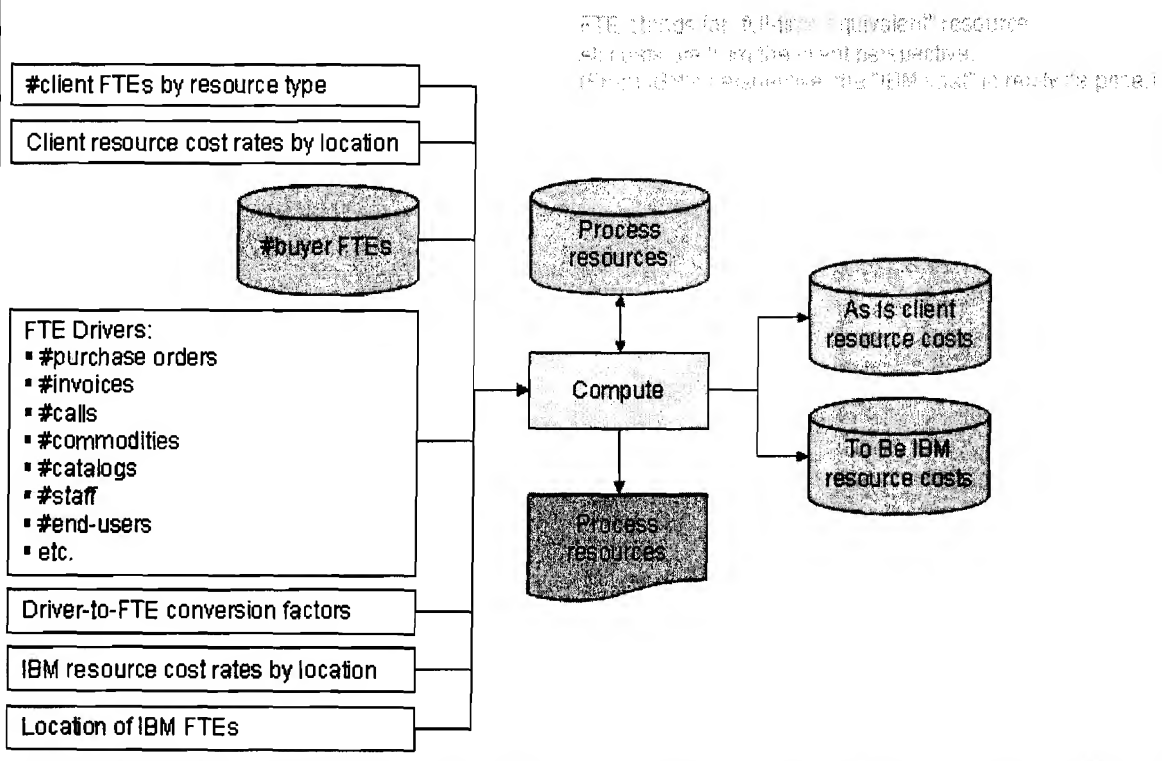


The first input is to a configurator that sets up the simulations. Annual spending drives the spending simulation. Selection of an industry template pre-populates a set of commodities appropriate to that industry. The scope of solutions determines which business processes IBM will perform for the client. Solution options are additional products and services that could be provided in support of those business processes. The simulation horizon determines the number of years of simulated time the simulations will cover. Output formatting controls the amount of detail in outputs: (1) monthly, quarterly, or yearly summaries and (2) commodity-level details. Schedule inputs control (1) the number of IT implementation phases and the amount of work done in each and (2) when the transition from the As Is to To Be processes will occur. Data prepared by the configurator includes commodities and schedule parameters. Finally, inputs to and data from the configurator can be displayed or printed.



The next set of inputs modify and extend the commodities with data about the client (i.e., IBM's customer). Some customers buy commodities that are not in the standard industry template, so the commodities set itself is editable. Active solutions can be taken out of scope for specific commodities. The commodity profile includes typical transaction size (used later to compute the number of purchase orders (POs), invoices, and calls that a given amount of annual spending generates), the portion of transactions that can be processed automatically versus manually, and the number of POs that generate spending over multiple years. Buyer productivity rates are the numbers of POs a buyer can handle per day for each commodity, which is used to compute the number of buyers needed. Buying channels describe how much buying the client does today ("As Is") through its standard process, if any, versus how much it will do later ("To Be") through the IBM standard automated process. Consumption is the decrease in spending that will result from having a standard process or increase in spending that will result from growth in the client's business. Commodity pricing is the discount obtained via strategic sourcing if that solution is in scope. Settlement channels describe how much payment the client does manually today versus how much will be automated via the IBM standard process. Data prepared by this input stage includes (1) the number of As Is versus To Be transactions and (2) the number of buyers needed to support those transactions. Finally, inputs to and data from this input stage can be displayed or printed.

### Input #3: Process resources

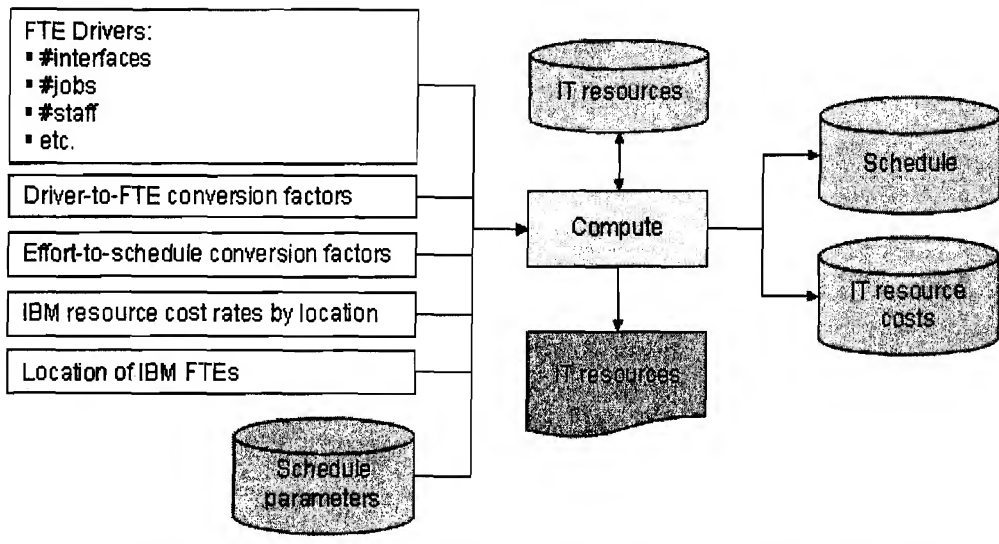


The next set of inputs define the human resources needed to perform the business processes today ("As Is") and during outsourcing ("To Be"). The number of full-time equivalent (FTE) resources the client uses today, plus their cost rates by location, are entered. Since clients may have resource types that are not in the standard set, the resource types set is editable. The number of IBM buyers needed was pre-computed during the previous input stage. The number of other IBM resources needed is computed by (1) entering an appropriate FTE driver for each resource type, (2) looking up the number of occurrences of each driver, and (3) dividing the number of occurrences by a conversion factor. The resulting resource counts are then multiplied times the cost rate for each FTE's location to get As Is and To Be resource costs. (Selecting the right mix of on-site, on-shore, and off-shore resources is key to achieving service level agreements at a competitive price.) Finally, inputs to and data from this input stage can be displayed or printed.

## Input #4: IT resources

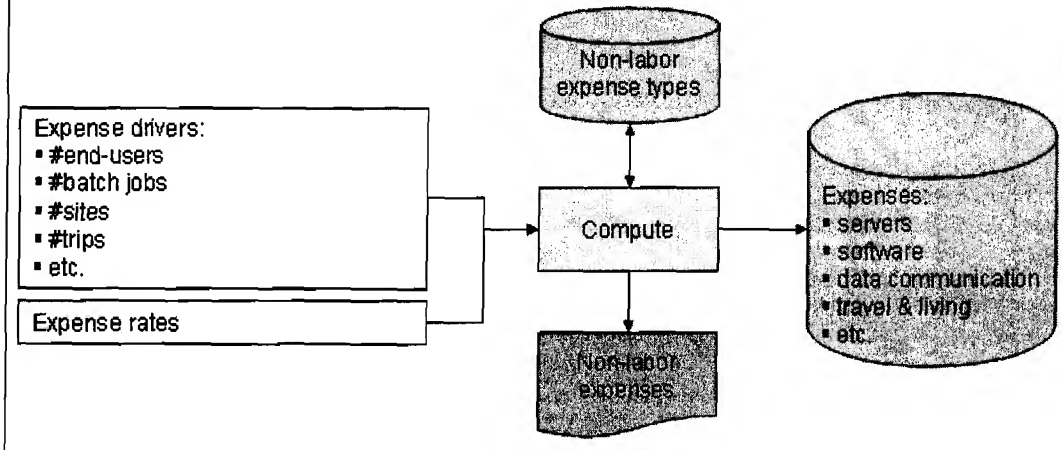
IT stands for "Information Technology"

FTE stands for "full time equivalent" resource



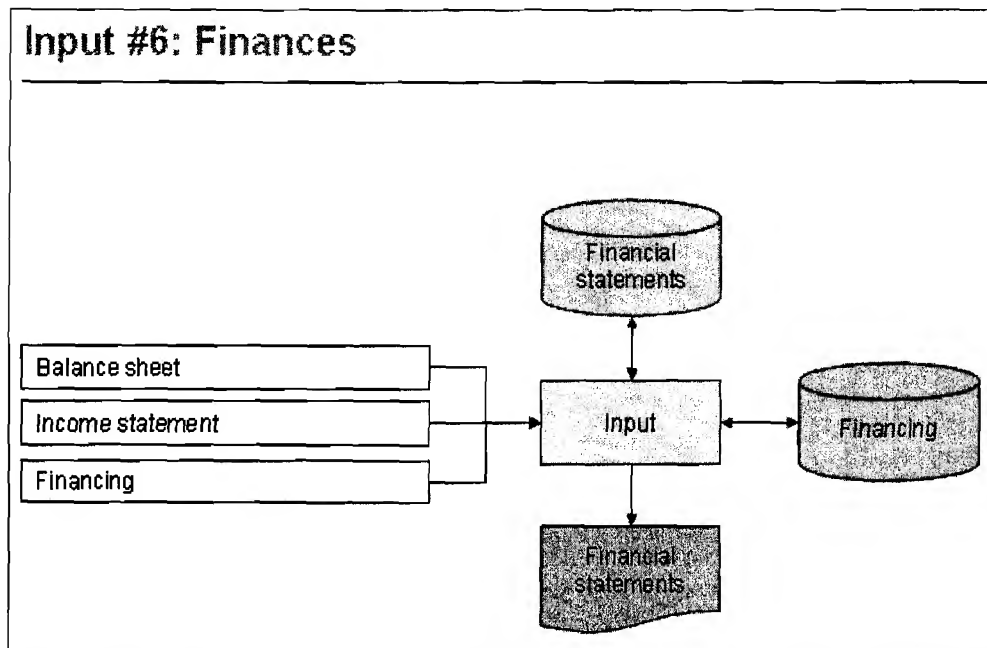
The next set of inputs define the information technology (IT) resources needed to achieve the transformation from As Is to To Be processes. IT resources are computed separately from non-IT resources because (1) there are no As Is resources to simulate and (2) some IT resources are needed for only a limited time, whereas non-IT resources are needed for the entire simulation. The IT resource type set is editable to accommodate special needs. For each resource type, the number of occurrences of an appropriate driver is divided by a conversion factor that yields work effort. The total work effort for finite-time activities (Design & Build and Implementation) and schedule parameters are used to compute the schedule. The schedule recognizes that completion of the finite-time activities initiates the on-going IT activities (Operation). Then FTEs needed to meet that schedule are computed. Resource counts are multiplied by cost rate for each FTE's location to get IT resource costs.

### Input #5: Non-labor expenses



The next set of inputs define non-labor expenses. The non-labor expense types set is editable. For each non-labor expense type, the number of occurrences of an appropriate expense driver is multiplied by the corresponding expense rate.

### Input #6: Finances

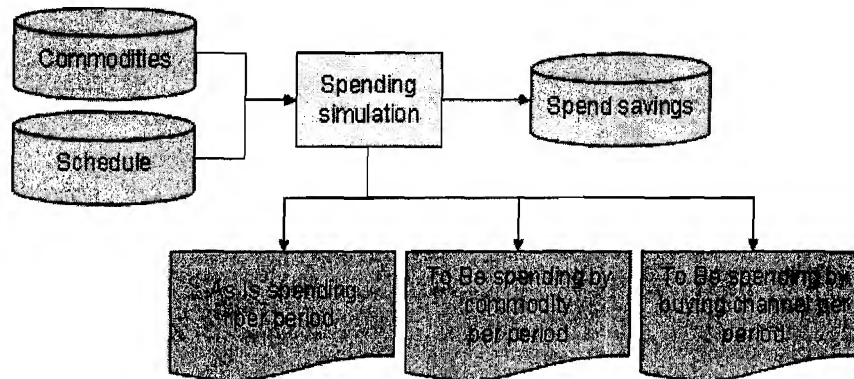


The last set of inputs includes the client's balance sheet and income statement, along with any IBM financial transactions, such as asset acquisition or financing of fees.



## Simulation #1: Spending

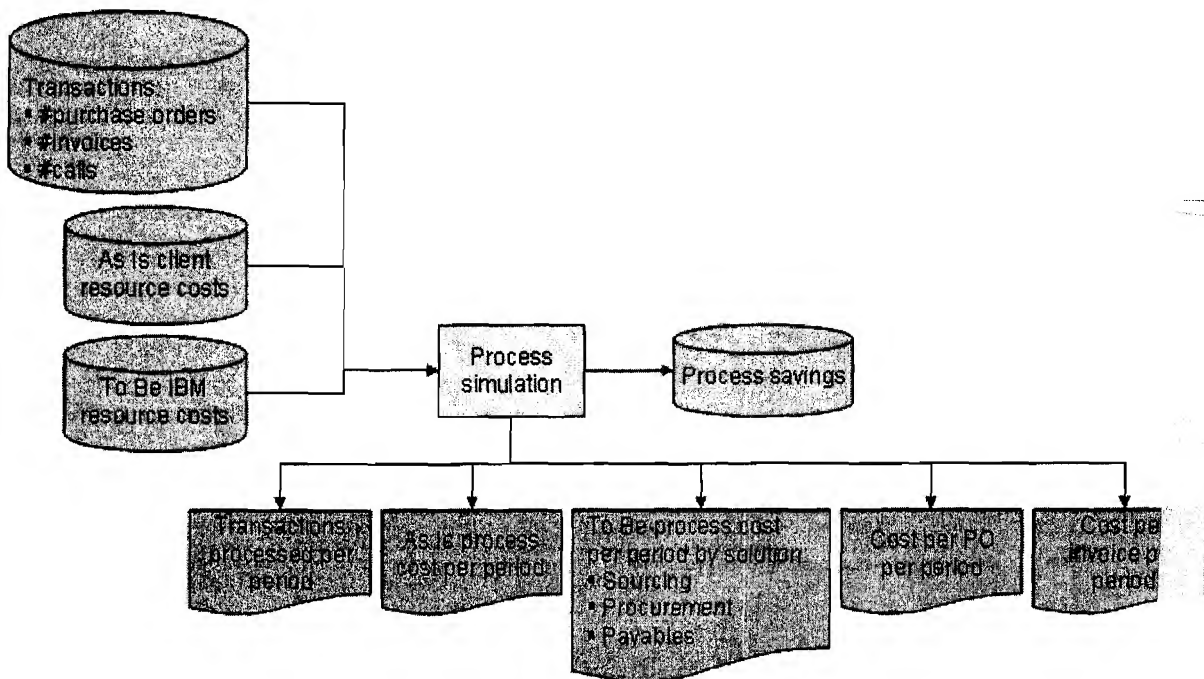
Spending data are numbered for comparison, but a change in data is automatically reflected in all the others, if applicable.



The spending simulation computes the amount of spending by commodity and by buying channel for each period, subject to the status of each period (As Is, Transition, or To Be) as well as changes in consumption, commodity pricing, and degree of compliance with the standard process.

(Non-compliant spending costs more because pricing discounts cannot be achieved.) Using the first As Is period as a baseline, spend savings is computed for each As Is period and cumulatively to the simulation horizon.

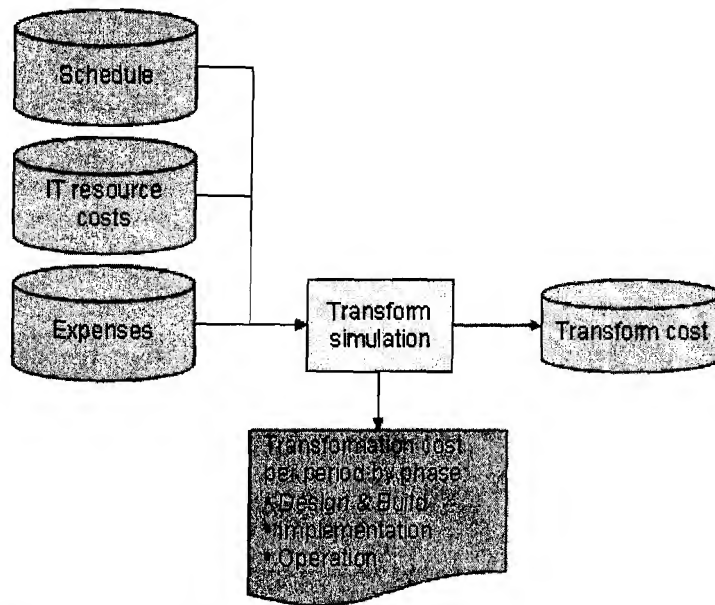
## Simulation #2: Process



The process simulation computes the number of transactions (POs, invoices, calls) during each

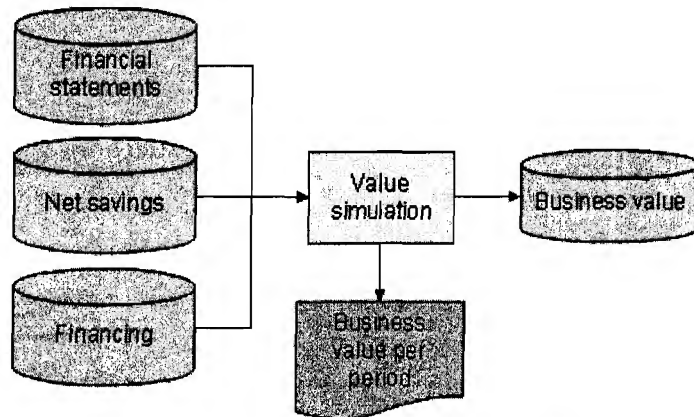
period, subject to the status of each period (As Is, Transition, or To Be) as well as changes in consumption and degree of compliance with the standard process. (Non-compliant transactions cost more because they cannot be automated.) This business process simulation is a flow model, [REDACTED] It shows how many transactions flow through each business process during each period, but does not simulate the processing of each individual transaction. Process cost per period by solution (Sourcing, Procurement, Payables) is computed from resource costs, adjusted for transaction volumes. Cost per PO and invoice per period are computed as total cost divided by number of transactions.

### Simulation #3: Transformation



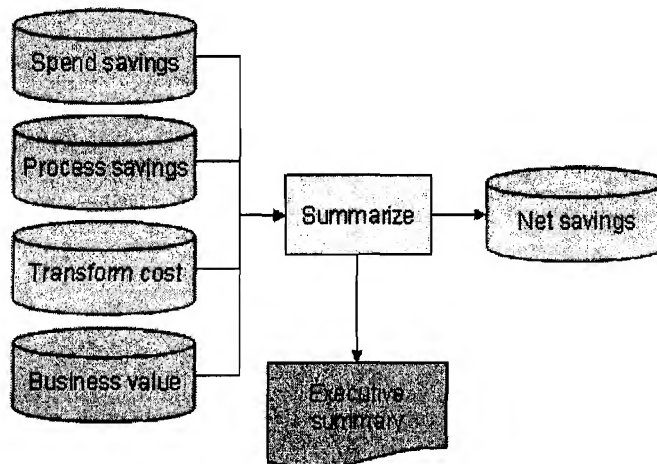
The transform simulation computes transformation cost per period by phase using IT resource costs and expenses, subject to the schedule. Phases can be serial, overlapping, or concurrent. They tend to be serial when the scope of work can be decomposed into independent releases. They tend to be overlapping or concurrent when the same work must be accomplished at multiple locations.

### Simulation #4: Value



The value simulation computes the impact of the net savings on the client's financial statements, subject to additional financial transactions, such as asset acquisition or financing of fees. When the client's cost of capital is considered, the impact of net savings from Business Transformation Outsourcing can be substantial.

### Executive summary of simulations



An executive summary of the simulations (1) computes the net savings used in the value simulation and (2) summarizes the results of all the simulations. Spend savings plus process savings minus transform cost equals net savings.

All the simulations are discrete rather than continuous. When run for clients, the simulations are deterministic. But when run for internal research purposes and risk management, they are stochastic (i.e., random variability can be injected and the simulations run many times to quantify

expected values).

The simulations do not embody optimization models. BTO engagements are far too complex overall to apply any familiar optimization algorithm. Indeed, this is the principal reason for using simulations rather than analytical models to build business cases.